MARCH, 1931

COTTON

THE TEXTILE MANUFACTURING JOURNAL

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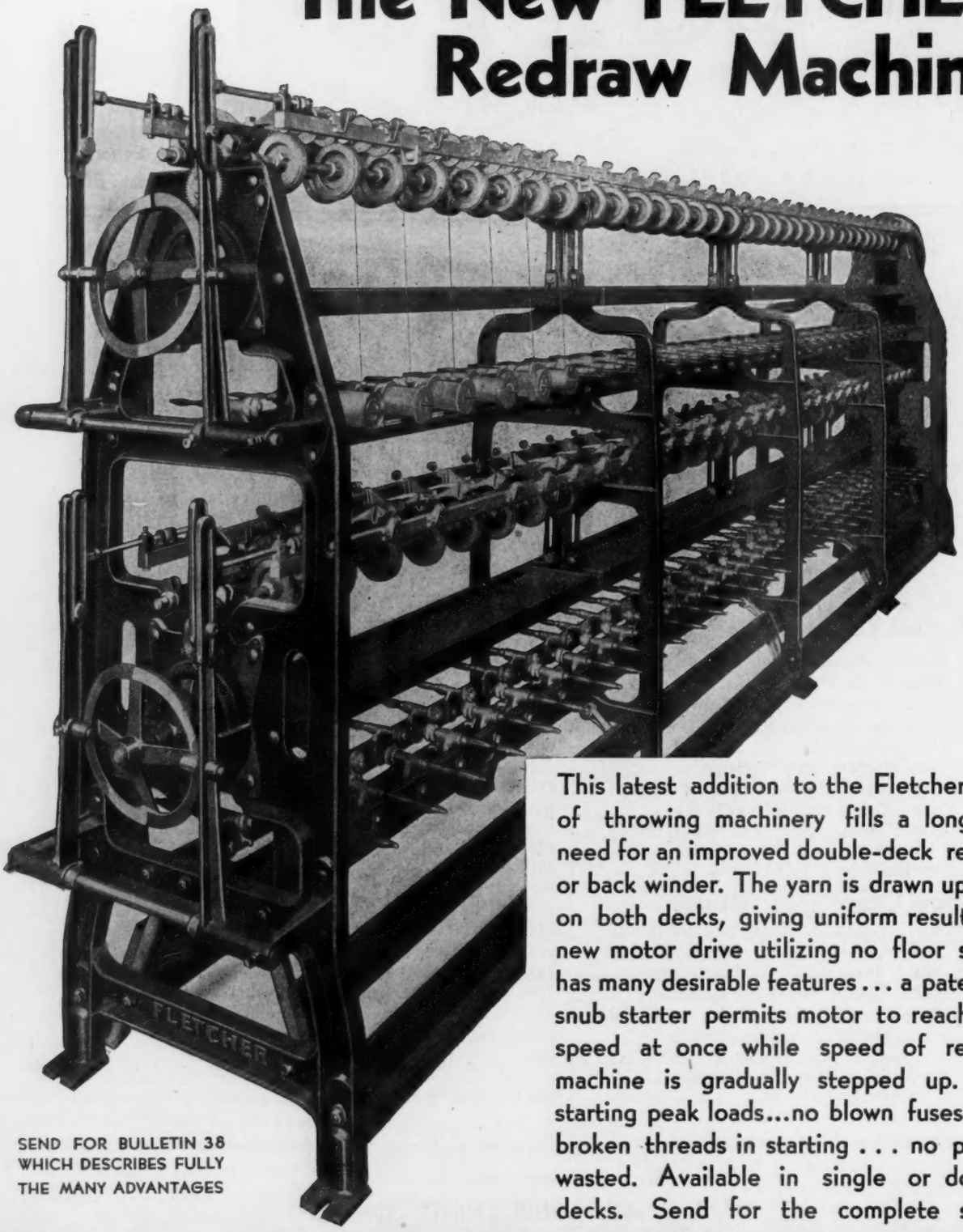

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COTTON

Vol. 95 March, 1931 No. 5

For Value Received

By Marjorie A. Potwin, Ph. D.

WITH THIS thoughtful analysis, Miss Potwin returns to our columns. Here she has selected a subject of prime importance to textile manufacturers, taken it apart, and discussed it in a constructive way, not glossing over the unpleasant nor emphasizing the best sides of industrial relationships in the mill.

Open-minded manufacturers should study her discussions with care and strive to apply her presentation of the case to their individual conditions, and to view the situation from the perspective of the industry as a whole.

AROUND THE matter of personnel, and particularly labor supplements or "surplus help," the cotton-textile industry is facing one of the most difficult and complicated social and economic situations that has ever confronted an industry.

One school of thought would dismiss the problem by suggesting the scientific employment of labor, a recommendation that is confronted with the very practical and numerous difficulties of securing the right employment managers, the cost of such a system to a comparatively small unit, and the unpopularity in the labor market of the mill that raises its standards of employment and performance higher than those of its neighbors.

Another school of thought would abolish the mill village system and family employment, but no help is forthcoming in that suggestion, as the mill villages are already in existence and no realtors seem to be craving to take them over. Moreover, among wage earners, as well as clerical and professional people, it is customary for more than one member of the family to work, often for the same employer.

Yet a third school of thought would solve the difficulties by the panacea of eliminating all "spare hands", only to hear the protest of practical mill men that the mills could not adequately be manned without a large supplement of labor at hand, and the regrettable truth is that the records seem too well to support their claim.

It is a matter of common knowledge that the cotton mills of the South normally carry a labor supplement seldom estimated to be less than twenty-five per cent, and usually much larger. We hear little of carrying the cost of this labor supplement, nor are we commended for the practice (and probably should not be.) Yet in the recent nation-wide urge that industry provide jobs for the unemployed, one large manufacturing firm, not in textiles, gained much favorable publicity for itself by announcing that it would make its contribution by temporarily taking on a labor supplement of twelve per cent.

The United States Department of Labor in 1926—those good old days prior to curtailment—published a study of "Lost Time and Labor Turnover in Cotton Mills"[1] — showing that among 10,000 representative "full time" cotton mill operatives which it had studied in seven southern states the average "time out" for the typical employee was 23.3 per cent. In the northern mills under study "time out" was 13.2 per cent.

We do not imagine that this study was made to prove that southern mill employees were enjoying a five-day week, and less than a 48-hour schedule, such as is at present being advocated in some quarters for all industry. But nevertheless 23.3 per cent out of a 60-hour week leaves less than 48 hours—46.1 hours, to be exact—while in a state like South Carolina, with a legal 55-hour week for textile operatives, the time actually worked is shown to be 37.2 hours. In what other occupation does such leniency exist, or is such idleness permitted?

The study further states that 78 per cent of the time out was "for personal reasons", by request, which necessitated the employment of a "spare".

Re-arranging the data, it is evident that the operative studied was living on the wages paid for 76.7 per cent of his possible working time and income, a fact which takes on real significance when we recall that at the time covered by the study the mill people, along with all other good Americans, were spending unprecedented amounts upon food, clothing and luxuries.

Thus is set up the anomaly of abundant leisure, wages notoriously reputed to be low, a phenomenon increasingly perplexing to those of us who rejoice that the standard of living among many cotton mill people includes expensive canned goods, silk hose, seasonally new hats and frocks, laundry and dry cleaning service, and ever more and better furniture.

Of course in the process of averaging, bad records are raised, and good records are lowered, in this instance to the disadvantage of those mills and individuals with high attendance records, but whatever is the time actually worked by the average operative, and however figures about it may be interpreted, the fact remains that it costs an employer as much to

(1) Bulletin No. 52, U. S. Department of Labor.

house, and to provide social facilities for the operative who works 25 per cent of his time as it does for the employee who puts in 100 per cent of his time. In the long run it may cost more if there is any virtue in the old adage about idle hands and mischief, aside from any irregularity of operation that may be caused in the mill by excess absenteeism.

While prevalent absenteeism stimulates a vicious circle around wage-splitting, a terrific rate of labor turn-over—189.5 per cent in southern mills, and 94.4 per cent in northern mills—negates much of the efficiency and morale that should result from the beneficient intention of those many manufacturers who provide group insurance, community nursing, and various and elaborate forms of recreation and personnel service.

It is startling to read that in Japan, where labor costs are drastically lower than they are among us, "a complete turnover in female help every three years is reckoned to cost from $10.00 to $20.00 per head, or a charge of about 8 per cent on the wage cost."(2) If the cost of the labor flux in our southern mills has been estimated to any general extent, it evidently has not become a matter of common knowledge, perhaps not of interest.

EVEN in the "good old days" prior to curtailment, the average time out among 10,000 "full-time" cotton mill operatives in seven southern states was 23.3 per cent.. Taking this from a 60-hour week leaves less than 48 hours actually worked. Under such a condition can we all not agree with Miss Potwin when she urges "research in the humanics of our cotton mills" to point to the elevation of employment standards whereby the textile industry could support fewer and more stable operatives better?

If ever there was a time in the history of industry when a job was supposed to be cherished it was during the depression of 1930, and yet figures of the U. S. Department of Labor, available for the first nine months of that year, show that the rate of turn-over, in cotton manufacturing, was 20.5 per cent for that period, quite in contrast to the discharge rate of 1.7 per cent, which may reflect the seriousness with which the employers, at least, regarded employment in those dark hours, when to operate at all was largely to take care of those employees dependent upon the mills.

It would be to the good of all concerned if research in the humanics of our cotton mills could point to the elevation of employment standards whereby the textile industry could support fewer and more stable operatives better; or if, as certain trends indicate, absenteeism and labor turn-over are inherent in the occupation and cannot be checked, that would be valuable knowledge in the light of which to shape private and public opinion as to the personal factor in textiles, and the many difficult and far-reaching problems incident to it.

But more important than any statistical counting of labor turn-over or any monetary estimate of absenteeism or the cost of subsidies and labor supplements are the social elements and properties that lie behind them, for it is upon the potentialities of the textile population that the future of the industry depends. What latent powers to bring about stabilization and better returns upon financial and social investments are within the operatives themselves?

We cannot believe that all the cotton mill people either rest upon their oars or jump overboard, but why is it that in a village widely recognized for its humanitarian policies, figures show that 30 per cent of its nursing service for a recent year was expended on families that folded their tents, like the Arabs, and silently stole away before the end of the year? Why is it that another mill which carries generous group insurance for its employees has found that at the end of the seventh year of the policy, only 60 of the original 500 employees insured are still with that mill? Why is it that every mill school complains of being handicapped by the number of pupils moving away and moving in? Why is it that at one of the best equipped and newest mills in the South, with the most modern bungalows, and a model village, only nine per cent of the payroll has been eligible for the handsome service awards given for five years continuous employment?

And if these things are so where employer-employee relationships are carefully fostered—in those mills designated by the textile operatives themselves as the "good mills"—what in the world is taking place in those mills where social policies are neglected?

A situation is seldom so good that it cannot be improved. At the present time, when, on the one hand, financial interests are threatening to withdraw their support from the cotton textile industry unless operating expenses can be reduced to obtain a profit, while, on the other hand, private reform and public legislation proceed on the assumption that textile operatives are overworked and underpaid, is it not fundamentally important for our industry to analyze its social policies and its employment methods? Without destroying the good in our humanics, are there not wastes and extravagances that could be eliminated to the mutual benefit of employer and conscientious employee?

At no mill are living conditions too good, nor wage scales too generous, nor personnel service too ample to be proffered to those of the cotton mill people who earnestly desire to exchange a full measure of service with their employers. There are thousands of such cotton mill people, ambitious, steady, provident, well worthy of that ardent loyalty that the mill executives hold for the industrial and personal characteristics of those to whom they affectionately refer as "our people."

However, in order to preserve the good things of life—perhaps the existence of the industry itself—for such employees, who, like their employers, are staking their all upon it, it is necessary to face the less pleasant side of the story, based upon facts which can neither be avoided nor glossed over.

Because it was incumbent upon the early southern cotton mills to frame their policies to meet the

(2) "The Cotton Textile Industry in Far Eastern Countries," by C. K. Moser, for Pepperell Mfg. Co.

"RATHER than be discouraged by whatever imperfections exist, should we not be stimulated to scruitinize all the conditions that embrace cotton mill work? What, if anything, is intrinsically wrong with it? Why is the occupation so lightly regarded, or is the main trouble due to the way in which men and jobs are assigned each other?"

Dr. POTWIN
Photo by Bachrach.

"CERTAINLY nothing would be lost, and much might be gained, if the cotton-textile industry next set itself to thinking more definitely in terms of humanic wastes and humanic values. Thought and research are ever the handmaidens that attend resources in an effort to conserve them, and to mix science with sentiment is not to become less genial or less kind."

rehabilitation needs of a shattered section, they worked out for the textile industry a social policy to which employment policies have been secondary and casual, whereas other industries in other places have set up their employment standards first and from them have developed the social policies they hold.

There has always been something fine and magnanimous in the southern way of making our industry primarily serve the social needs of those who look to it, not for employment more than for life itself. The late Fuller Callaway dramatized the sentiment in those famous words "making American citizens and running cotton mills to pay the expenses."

All honor and all glory to those manufacturers who spared no effort in helping an economic cripple to its feet. In addition to putting money and medicine within reach of a famishing people, even more they said "with flowers", evolving from the relationship a personal equation that has become a cherished tradition in the industry, with everyone agreeing that the basic properties of that relationship are worthy of the choicest preservation.

It is the difficult task of the present employers to translate the close personal relationship of the old days into the new ways that are demanded by new times with their new generation of textile consumers and textile operatives, neither of which place much premium on sentiment.

How is it possible for the mills, under the urge for more economic operation, to adapt that expansive social policy upon which personal relationships have been founded? Some of the most wisely invested funds are those which industry expends to make its operatives comfortable and happy, but is there not a very nice distinction between those legitimate expenditures that an employer may make to promote the health and efficiency and morale of his employees and that use of stockholders' money which is in reality charity, *ultra vires*, in that its recipients are not necessary or helpful to the operation of the mill?

Rather than be discouraged by whatever imperfections exist, should we not be stimulated to scrutinize all the conditions that embrace cotton mill work? What, if anything, is intrinsically wrong with it? Why is the occupation so lightly regarded, or is the main trouble due to the way in which men and jobs are assigned each other?

Is there really a cultural lag between incomes and standards of living? Is the beneficience of the mills accepted merely as a commonplace courtesy? Are social policies held cheap because they have not been tied in with a discriminating selection of those who profit by them?

In all these things, and many more, we are groping in the dark. A pooling of the extensive practical knowledge of those who actually employ and those who are employed would doubtless throw much light on a complicated situation in which we are without chart or compass.

Possibly some of the mills are doing much to establish their social policy upon a sound economic basis; perhaps nothing more can be done, or should be done. Yet as a whole the textile industry seems to tend toward extremes. At some mills, in policies humanic, the sky's the limit, with no question as to value received; at others, conditions are of the earth, regrettably earthy, sore spots of the industry. With the knowledge in hand, could we set up a social norm, deviations from which on the one hand would indicate policies so extravagant, and on the other hand, practices so parsimonious, as to defeat their purpose?

Like social policies, employment records now show a wide range of variability. Some operatives may work too much, others evidently work too little. Is it best to continue a feast-and-famine policy, or should the prevailing ideal be sensible rations, sensibly served?

Speaking before the Southern Textile Association in October, George S. Harris, ex-president of the Cotton Manufacturers' Association, of Georgia, and of the American Cotton Manufacturers Association, drew attention to the fact that only in the last ten years we "have learned to think in such terms as loom stops per day, ends down per thousand per hour."

Certainly nothing would be lost, and much might be gained, if the cotton-textile industry next set itself to thinking more definitely in terms of humanic wastes and humanic values. Thought and research are ever the handmaidens that attend resources in an effort to conserve them, and to mix science with sentiment is not to become less genial or less kind.

A Mill Report on Long-Draft Spinning on a Large-Package Frame

THIS SHORT article is based on actual mill figures showing the results secured in a thorough test of long draft, large package spinning. In other words, making 23s, a long draft frame with 2⅛-inch ring and 4-inch gauge was used, using 1.54-hank single roving, and running 134 r.p.m. on the front roll. The comparisons given here from the standpoint of strength, appearance and running qualities of the yarn, as well as the savings effected, are interesting.

THE PURPOSE of this article is to report some thorough tests we have made as to the advantages of long draft spinning over regular draft spinning, and, in the same connection, to show the advantages in the use of large package spinning. This article is based on reports made from actual tests which were conducted to show just what long draft and wide-gauge large package spinning have saved under actual working conditions.

The tests were made on a long draft spinning frame, spinning ⅞ to 15/16-inch Middling cotton into 23s warp yarn, with a 4.75 twist multiple. The roving used was 1.54-hank single. The rolls drafted 15.3 and had a front roll speed of 134 r.p.m. A 2⅛-inch ring, with a 4-inch gauge, was used. We used a 15/16-inch bobbin, and an 8-0 traveler.

The regular draft frame spun 23s warp, 4.75 twist multiple, from the same cotton, using a 3.55-hank single roving, with a draft of 6.48 and a front roll speed of 120 r.p.m. It was equipped with 1¾-inch rings, 2¾-inch gauge; ¾-inch bobbin, and a No. 1 traveler.

From several weeks of testing, the long draft frame showed an average breaking strength of 71.5 pounds; the end breakage tests showed only 7.08 ends down per thousand spindles per hour. This breaking strength of 71.5 pounds was about six pounds better than our average breaking strength obtained from our regular draft frame. While our end breakage was only 7.08 ends down per one thousand spindle hours on the long draft, we averaged about 35 ends down on the regular draft, or about five times as many ends down on the regular draft as on the long draft.

The fact that we made a large package on the long draft frame, 2⅛-inch ring and 7½-inch traverse, brought out another interesting fact. The doffing time jumped from 4½ hours on the regular draft to 10½ hours on the long draft; thus an immediate saving was secured in the doffing cost.

It might be mentioned here that the yarn from both frames was placed on a blackboard and compared under a glass, and it was found that the long draft yarn showed superior to the regular draft yarn.

By the making of this stronger and better yarn, and the use of the large package, we find that we can modify our spooling system. This yarn will spool better, and, of course, will take twice as long to run off, thus enabling us to cut our spooling cost. Also, we are able to send yarn to the weave room with fewer knots.

As the end breakage on the long draft spinning is very low, and the roving in the creels run about four times longer than the regular draft (since we use 10x5 intermediate roving instead of 8x3½, cutting creeling to a minimum) we find that the spinners can run more sides.

As I have stated, the long draft, wide-gauge frames run longer and doff less, and this, in combination with less ends down, give us an added increase in production which we figure to be about two per cent. In explanation of this, I might say that our tests showed that, due to a roll speed of 134 r.p.m. as against 120 r.p.m., the long draft, wide-gauge frames, give a sufficient production, figured from the front roll, so that 16,214 of these spindles would give the same production as 18,446 spindles of regular draft at 120 r.p.m., figured from the front roll. In addition, as explained, due to the longer doffing time and decreased end breakage, there is an increase in production of about two per cent.

Also to be remembered in figuring up our savings is the fact that we have eliminated a process in the card room, since we use intermediate roving on the long draft spinning.

It may be stated here that the long draft rolls are very sensitive to gouts and weak roving; thus requiring a better roving than is necessary for regular spinning. This requirement of a better roving is, of course, all to the advantage of the mill. This extreme sensitiveness of the long draft rolls to bad roving acts as an indicator for the type of roving coming from the card room. When the spinning runs bad on long draft spinning it is a sure sign of bad roving; on the regular spinning this is not always caught until the yarn is in the cloth and the spinning room is already flooded with the roving.

Another interesting feature in our test was a report made by outside electrical engineers which compared the power costs of regular draft spinning, with regular cylinder bearings, against the long draft, wide-gauge spinning equipped with ball-bearing cylinders. This is shown as follows:

.024 h.p. per spindle on empty bobbin, regular draft.

.021 h.p. per spindle on empty bobbin, long draft.

.029 h.p. per spindle on full bobbin, regular draft.

.026 h.p. per spindle on full bobbin, long draft.

In conclusion, I may point out that our tests on other counts of yarn, though not as extensive as on 23s, verified every statement made in connection with this count.

Wages, the Depression, and Buying Power

Some thoughts on present conditions: Is the suggestion of Victor Montgomery for half-time and double-wages prophetic?

A THOUGHTFUL contributed discussion which analyzes conditions in the textile industry, as a result of the passing period of depression. The writer emphasizes the relation between agriculture and manufacturing, discussing also the influence of hand-to-mouth operations by consumers from a new angle.

As to wages in the industry, he points out that there has been no general movement downward, taking the position that to retain or increase wage scales or rates, with reduced working schedules, is preferable to fuller employment at lower rates.

DEPRESSION obviously breeds talk of deflation in wages, as in prices of goods, and the intensity thereof naturally grows with the prolongation of bad times. Yet in the textile industry, as well as without, there has been a notable abstention from a general effort to establish a lower basis of wages per hour. The normal course of wages is steady and upward over the long run, while readjustment downward in time of adversity destroys the buying power of a large consuming element and accordingly reacts against the very thing which producers are all ardently hoping to improve. More buying power is the need.

This position perhaps appears to conflict with what some are inclined to believe a post-war deflation. But that belief may be in error. Mass production methods have reduced costs and at the same time increased wages in industry. The deflation is most severe in raw commodities and the prevailing belief is that the decline has been overdone. If that is the case—which, incidentally in some commodities was created by production stimulated to inordinate size through artificial support—it is a temporary condition and not a sign of the future. Those who argue for a downward adjustment of industry to agriculture are assuming more or less permanent retrocession as the bodyguard of the late depression. That is contrary to economic evolution.

When we consider the position of agriculture, as related to industry, we must admit that the growth of industrial mass production has created new problems for growers. In the textile industry, for example, the manufacturer has gradually improved his equipment and operations till he meets the market months closer to the time of consumption of the finished goods than he did before. In view of this fact, the converter in each process from the mill taking the raw material to the retail distributor of the finished product is foregoing the old practice of ordering way ahead of his requirements.

Only a superficial study of this situation is needed to reveal that the producer of the raw material, or the agency which takes it off his hands, cannot duck the burden of carrying stocks. This is especially true of products which by nature are accumulated in one short season for the whole year. Industry has thrown a burden of this kind upon the growers of or primary dealers in cotton and wool, which reacts in more than one adverse way. Besides the financial burden forced upon them, they face a constantly bearish factor in what appear to be abnormal stocks, even though the supply for the whole year may be no more than adequate to the aggregate requirements over the period to the next crop.

This hand-to-mouth procedure has been carried to extremes and presumably will be ameliorated. At least some happy medium between the present close buying and old-time sharing of the raw-material carrying burden with the producers or agents is likely to develop. Already the markets for some finished products indicate that retailers have overstayed, jobbers and wholesalers the same, and manufacturers in their turn, because of fear to anticipate growing consumption. Shortages of supplies in the converting end whatever process, are bound to set buyers looking ahead and continued progress in ready turn-over of semi- or wholly-manufactured goods will logically inspire more liberal buying policies.

This will have a stabilizing influence on raw material, but there will remain the problem of maladjustment between industry and agriculture, to be remedied by changes downward in the former, upward in the latter or something else which may be in process today. Over-production is sure to be alleviated by the law of supply and demand. But over-production is existent only when the supply is more than the public will buy at some price which is above the cost of production.* The last factor, therefore, becomes a permanent issue.

Costs have declined in industry through mass production and more economical operation. When the automobile industry became important, it caused a revolution in all mechanical production; in fact in all human activity of this country. Everything was speeded up, to bring various activities into line with new conditions of travel and business. Agriculture had to get into line until it, too, assumed the form of a mechanized industry. The problem now is to adjust production in agriculture to that in other industry, or a new phase of the age-long struggle to reconcile the two main elements of economic life.

Whether costs of production in agriculture have been reduced by new methods to make reasonably profitable the turn-over of a normal volume of farm products at a level somewhere between the present extreme and former customary ranges is a question to be determined. That determination will be partly disclosed by what happens as industry extends its buying of commodities. As it is essential to provide wage earners and the great urban population with

A Mill Report on Long-Draft Spinning on a Large-Package Frame

THIS SHORT article is based on actual mill figures showing the results secured in a thorough test of long draft, large package spinning. In other words, making 23s, a long draft frame with 2⅛-inch ring and 4-inch gauge was used, using 1.54-hank single roving, and running 134 r.p.m. on the front roll. The comparisons given here from the standpoint of strength, appearance and running qualities of the yarn, as well as the savings effected, are interesting.

THE PURPOSE of this article is to report some thorough tests we have made as to the advantages of long draft spinning over regular draft spinning, and, in the same connection, to show the advantages in the use of large package spinning. This article is based on reports made from actual tests which were conducted to show just what long draft and wide-gauge large package spinning have saved under actual working conditions.

The tests were made on a long draft spinning frame, spinning ⅞ to 15/16-inch Middling cotton into 23s warp yarn, with a 4.75 twist multiple. The roving used was 1.54-hank single. The rolls drafted 15.3 and had a front roll speed of 134 r.p.m. A 2⅛-inch ring, with a 4-inch gauge, was used. We used a 15/16-inch bobbin, and an 8-0 traveler.

The regular draft frame spun 23s warp, 4.75 twist multiple, from the same cotton, using a 3.55-hank single roving, with a draft of 6.48 and a front roll speed of 120 r.p.m. It was equipped with 1¾-inch rings, 2¾-inch gauge; ¾-inch bobbin, and a No. 1 traveler.

From several weeks of testing, the long draft frame showed an average breaking strength of 71.5 pounds; the end breakage tests showed only 7.08 ends down per thousand spindles per hour. This breaking strength of 71.5 pounds was about six pounds better than our average breaking strength obtained from our regular draft frame. While our end breakage was only 7.08 ends down per one thousand spindle hours on the long draft, we averaged about 35 ends down on the regular draft, or about five times as many ends down on the regular draft as on the long draft.

The fact that we made a large package on the long draft frame, 2⅛-inch ring and 7½-inch traverse, brought out another interesting fact. The doffing time jumped from 4½ hours on the regular draft to 10½ hours on the long draft; thus an immediate saving was secured in the doffing cost.

It might be mentioned here that the yarn from both frames was placed on a blackboard and compared under a glass, and it was found that the long draft yarn showed superior to the regular draft yarn.

By the making of this stronger and better yarn, and the use of the large package, we find that we can modify our spooling system. This yarn will spool better, and, of course, will take twice as long to run off, thus enabling us to cut our spooling cost. Also, we are able to send yarn to the weave room with fewer knots.

As the end breakage on the long draft spinning is very low, and the roving in the creels run about four times longer than the regular draft (since we use 10x5 intermediate roving instead of 8x3½, cutting creeling to a minimum) we find that the spinners can run more sides.

As I have stated, the long draft, wide-gauge frames run longer and doff less, and this, in combination with less ends down, give us an added increase in production which we figure to be about two per cent. In explanation of this, I might say that our tests showed that, due to a roll speed of 134 r.p.m. as against 120 r.p.m., the long draft, wide-gauge frames, give a sufficient production, figured from the front roll, so that 16,214 of these spindles would give the same production as 18,446 spindles of regular draft at 120 r.p.m., figured from the front roll. In addition, as explained, due to the longer doffing time and decreased end breakage, there is an increase in production of about two per cent.

Also to be remembered in figuring up our savings is the fact that we have eliminated a process in the card room, since we use intermediate roving on the long draft spinning.

It may be stated here that the long draft rolls are very sensitive to gouts and weak roving; thus requiring a better roving than is necessary for regular spinning. This requirement of a better roving is, of course, all to the advantage of the mill. This extreme sensitiveness of the long draft rolls to bad roving acts as an indicator for the type of roving coming from the card room. When the spinning runs bad on long draft spinning it is a sure sign of bad roving; on the regular spinning this is not always caught until the yarn is in the cloth and the spinning room is already flooded with the roving.

Another interesting feature in our test was a report made by outside electrical engineers which compared the power costs of regular draft spinning, with regular cylinder bearings, against the long draft, wide-gauge spinning equipped with ball-bearing cylinders. This is shown as follows:

.024 h.p. per spindle on empty bobbin, regular draft.

.021 h.p. per spindle on empty bobbin, long draft.

.029 h.p. per spindle on full bobbin, regular draft.

.026 h.p. per spindle on full bobbin, long draft.

In conclusion, I may point out that our tests on other counts of yarn, though not as extensive as on 23s, verified every statement made in connection with this count.

Wages, the Depression, and Buying Power

Some thoughts on present conditions: Is the suggestion of Victor Montgomery for half-time and double-wages prophetic?

A THOUGHTFUL contributed discussion which analyzes conditions in the textile industry, as a result of the passing period of depression. The writer emphasizes the relation between agriculture and manufacturing, discussing also the influence of hand-to-mouth operations by consumers from a new angle.

As to wages in the industry, he points out that there has been no general movement downward, taking the position that to retain or increase wage scales or rates, with reduced working schedules, is preferable to fuller employment at lower rates.

DEPRESSION obviously breeds talk of deflation in wages, as in prices of goods, and the intensity thereof naturally grows with the prolongation of bad times. Yet in the textile industry, as well as without, there has been a notable abstention from a general effort to establish a lower basis of wages per hour. The normal course of wages is steady and upward over the long run, while readjustment downward in time of adversity destroys the buying power of a large consuming element and accordingly reacts against the very thing which producers are all ardently hoping to improve. More buying power is the need.

This position perhaps appears to conflict with what some are inclined to believe a post-war deflation. But that belief may be in error. Mass production methods have reduced costs and at the same time increased wages in industry. The deflation is most severe in raw commodities and the prevailing belief is that the decline has been overdone. If that is the case—which, incidentally in some commodities was created by production stimulated to inordinate size through artificial support—it is a temporary condition and not a sign of the future. Those who argue for a downward adjustment of industry to agriculture are assuming more or less permanent retrocession as the bodyguard of the late depression. That is contrary to economic evolution.

When we consider the position of agriculture, as related to industry, we must admit that the growth of industrial mass production has created new problems for growers. In the textile industry, for example, the manufacturer has gradually improved his equipment and operations till he meets the market months closer to the time of consumption of the finished goods than he did before. In view of this fact, the converter in each process from the mill taking the raw material to the retail distributor of the finished product is foregoing the old practice of ordering way ahead of his requirements.

Only a superficial study of this situation is needed to reveal that the producer of the raw material, or the agency which takes it off his hands, cannot duck the burden of carrying stocks. This is especially true of products which by nature are accumulated in one short season for the whole year. Industry has thrown a burden of this kind upon the growers of or primary dealers in cotton and wool, which reacts in more than one adverse way. Besides the financial burden forced upon them, they face a constantly bearish factor in what appear to be abnormal stocks, even though the supply for the whole year may be no more than adequate to the aggregate requirements over the period to the next crop.

This hand-to-mouth procedure has been carried to extremes and presumably will be ameliorated. At least some happy medium between the present close buying and old-time sharing of the raw-material carrying burden with the producers or agents is likely to develop. Already the markets for some finished products indicate that retailers have overstayed, jobbers and wholesalers the same, and manufacturers in their turn, because of fear to anticipate growing consumption. Shortages of supplies in the converting end whatever process, are bound to set buyers looking ahead and continued progress in ready turn-over of semi- or wholly-manufactured goods will logically inspire more liberal buying policies.

This will have a stabilizing influence on raw material, but there will remain the problem of maladjustment between industry and agriculture, to be remedied by changes downward in the former, upward in the latter or something else which may be in process today. Over-production is sure to be alleviated by the law of supply and demand. But over-production is existent only when the supply is more than the public will buy at some price which is above the cost of production.* The last factor, therefore, becomes a permanent issue.

Costs have declined in industry through mass production and more economical operation. When the automobile industry became important, it caused a revolution in all mechanical production; in fact in all human activity of this country. Everything was speeded up, to bring various activities into line with new conditions of travel and business. Agriculture had to get into line until it, too, assumed the form of a mechanized industry. The problem now is to adjust production in agriculture to that in other industry, or a new phase of the age-long struggle to reconcile the two main elements of economic life.

Whether costs of production in agriculture have been reduced by new methods to make reasonably profitable the turn-over of a normal volume of farm products at a level somewhere between the present extreme and former customary ranges is a question to be determined. That determination will be partly disclosed by what happens as industry extends its buying of commodities. As it is essential to provide wage earners and the great urban population with

buying power, so the great farm public is a force which industry must reckon with as one of its main dependencies. Therefore, some adjustment must come between the two elements for the broad prosperity of each and both.

Deflation is Temporary.

Getting back to industry and its employees, some observers argue that we are in a time of deflation from which we will not emerge for long years, so labor should share in the adjustment. But there is no assurance of this condition. On the other hand, a prominent authority predicted some months ago that the next decade will see a furtherance of the economic paradox of falling prices, accompanied by rising wages. This, it is calculated, will develop by further increase in production per capita and corresponding reduction in costs. In other words, the tendency of the century to date apart from temporary upsets, will be maintained.

Significant of the common hesitancy toward reduction of wages is the fact that, after talk of possible change for the better part of a year, perhaps more than twelve months in some cases, no broad movement downward has arisen. The textile industry has had its discussion of the subject, with irregular reductions evident, yet here too, a difference of opinion has prevailed among manufacturers concerning the wisdom of lowering wages in the mills. The recent statement credited to Victor M. Montgomery, of Spartanburg, S. C., that half-time and double-wages would afford the industry a solution for its difficulties—by avoiding over-production and conserving purchasing power—is food for thought in the crisis, which incidentally should soon be past.

In line with Mr. Montgomery's idea, one thing which appears to be overlooked in the case is the relationship between wages and production. A depression is the fruit of over-production. When there is over-supply and under-buying, lower prices per se are no stimulus to turn-over of goods. That is a point upon which the Cotton-Textile Institute has been hammering for long. How much good would it do, in such circumstances, to reduce the scale of wages. It has been glibly stated that workers would be much better off to accept wages which would afford them six days work a week than to keep on at a higher scale in a short week. But that pre-supposes that reduced costs—and accordingly lower prices for products—would stimulate buying, whereas buying has been slow at any price.

Distribution of goods is based entirely upon distribution of buying power. Thus the economic problem is largely one of spreading the symbol of wealth —through wages and salaries—as widely as possible. It has become almost axiomatic that altruism is the most enlightened form of selfishness. Capacity to produce is so great that it is lost unless the average of buying power is lifted. That involves not only higher wages and salaries than in the past, but also greater opportunity for the consumption of the products of the factory and of the land. This is the essence of the higher standards of living in the United States and those who advocate reduction in wages and salaries are directly or indirectly attacking such standards.

Instances of outspoken declaration that the standards of living are too high are heard today in this country and in England. "Talk of drastic slashes in American living standards and 'permanent lows' in wages borders closely on economic lunacy," says Dr. Klein of the United States Department of Commerce. Henry Ford was quoted some time ago as stating that the automobile had raised the average intelligence of the people. We would amend that by saying that the people have been getting more chance through the auto and other material benefits of life to use the intelligence that they have always possessed, but which was put to circumscribed use because of past economic conditions.

WHEN THERE is an over-supply and under-buying, lower prices per se are no stimulus to turn-over of goods. That is a point upon which the Cotton-Textile Institute has been hammering for long. How much good would it do, in such circumstances, to reduce the scale of wages? It has been stated that workers would be much better off to accept wages which would afford six days work a week than to keep on at a higher scale in a short week. But that pre-supposes that reduced costs—and accordingly lower prices for products—would stimulate buying, whereas buying has been slow at any price."

People in many walks of life have had to accept reductions in income, as employers have been forced to take losses or reduction of profits. Labor has been forced to take lower wages, in actual returns, if not in a reduction of scale. But while there has been much unemployment, it is true, as indicated, that lower wages for a full week would hardly have furnished the solution to the problem. That would not have remedied the overproduction.

The Situation When Employment Picks Up.

It is not surprising that labor is willing to accept part-time employment at the scale, rather than reduce the rate. They are at a temporary disadvantage, but are in a position to reap instant benefit from improvement in business. And from the employers' standpoint, as stated recently by Edward D. Duffield, president of the Prudential Insurance Company of America, "Once employment picks up, wage earners will still be on a high level of purchasing power. That should be a prime factor in hastening recovery."

More and more observers are finding that industry, as well as government, is becoming a great social problem. Just so long as machinery can be refined to do more work, it will relieve society of labor burden more and more. That means actual "labor saving," which term has not been accepted except under pressure of necessity at its face value. The textile industry, a pioneer in mechanization, is just beginning to face the facts.

Textile Oil Phraseology — By Herbert C. Roberts

THERE ARE many terms and phrases used by those who handle oil in one way or another—such as oil manufacturers, users and purchasers individually—that are not familiar to one or more of these groups collectively. That is to say, an oil manufacturer and his salesmen will use terms and phrases in describing a certain product, without any attempt to be misleading, that will not fully be understood by the user or the purchasing agent. On the other hand, the persons actually using the product or wanting a product for a certain purpose will use expressions that are little understood by many manufacturers and their salesmen calling on the trade, unless the salesman might be fortunate enough to have had mill experience before he undertook selling. In other words, those handling oils in some way or other have many common terms which they use in every-day business that are not understood by everyone.

It is the purpose of this article to take many of these expressions which oil refiners, compounders, purchasing agents, salesmen, carders, spinners, dyers and finishers use in their respective businesses and make them familiar to each of the other group.

Saponifiable and Unsaponifiable Oils.

We can divide all oils and fats used in the textile trade into two parts or main groups. These are called saponifiable and unsaponifiable materials, depending whether or not they can be combined with alkalies to form soaps. The dictionary expresses the term "saponify" as a decomposition process wherein a soap is formed and glycerin is split off and set free. This is true in the case of certain kinds of oil but it is not true in the case of oils which have been freed of their glycerin before the saponification takes place. The subject of oils which have been freed of their glycerin will be discussed more in detail under the heading "Fatty Acids." The saponifiable oils can combine with alkalies while the latter cannot, consequently the latter oils, that is to say, those that do not combine with alkalies are termed "unsaponifiable oils." All mineral oils are unsaponifiable. This means that they have no soap-forming properties and cannot be combined with alkalies without the use of some solvents or saponifiable matter being present.

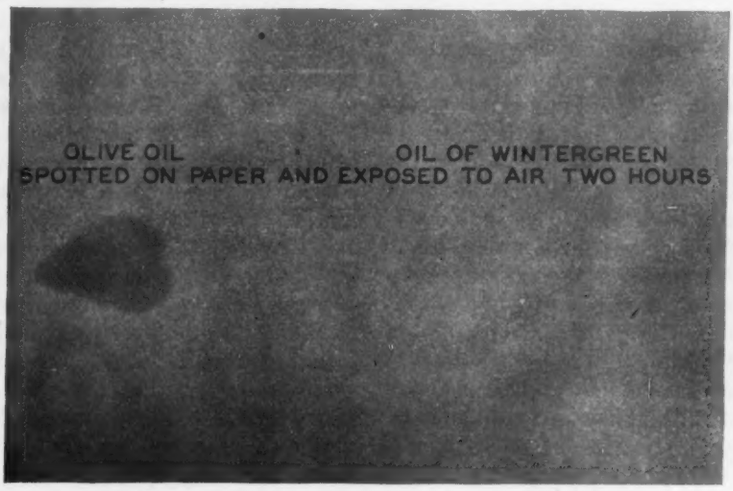


Fig. 1. Showing the difference between a fixed oil such as olive oil and an essential oil such as oil of wintergreen. Both are vegetable oils. The fixed oils remain on the paper, but the essential or volatile oils soon evaporate leaving no trace of their presence except a faint odor . . . . .

All oils derived from animal and vegetable sources, including marine animal life, are spoken of as saponifiable oils although there may be some unsaponifiable matter present in the oil. Some of these oils contain a portion which cannot be combined with alkalies to form soaps.

Animal, Vegetable and Mineral Oils.

Animal and vegetable oils are called saponifiable oils by some and by others fixed oils or fatty oils. This distinction is made to differentiate them from another kind of animal and vegetable oil occurring in commerce, but little used in the textile trade. This other class of oil is known as volatile oils or essential oils. They are characterized by their odor or aromatic properties. Volatile oils or essential oils, are derived from animal and vegetable sources but are not considered fixed or fatty oils by reason of the fact that when they are spotted on paper, they evaporate and do not leave an oil stain on the paper. The essential or volatile animal and vegetable oils are chiefly used as perfumes and flavoring extracts. Fig. 1 illustrates the paper test which differentiates these two classes of animal and vegetable oils.

Neutral Oils.

We speak in chemistry of a substance being "neutral." By this we mean that it does not possess any acid or alkaline characteristics. The term "neutral oil" is used by oil manufacturers to designate a certain kind of mineral oil that does not possess any acid or alkaline properties. The expression is also used in describing animal and vegetable oils as meaning a raw, uncombined or untreated oil. Thus one may describe an oil by stating that there is 45 per cent neutral oil present in the compound. Unless further explanation is made this may mean two things to the average person familiar with oil and oil terms. It may mean there is 45 per cent of a neutral distilled mineral oil present or it may mean that it is a mixture of 55 per cent processed oil, such as a sulphonated oil, and 45 per cent of an untreated raw oil such as olive oil. And unless it is further stated that this is all saponifiable or a certain percentage is saponifiable it may lead to some confusion. Chemically speaking, the

raw oil could not be considered a neutral oil inasmuch as no matter how well it was refined, it would contain a slight amount of free fatty acids.

Free Fatty Acids.

The term "fatty oil" must not be confused with another familiar term "fatty acids." All fatty acids are fatty oils but a fatty oil may contain little or practically no fatty acid, or it may be practically 100 per cent fatty acid. Fatty oil is just another way of saying saponifiable oil.

Fatty acids are obtained from saponifiable oils by a decomposition of the oil as it occurs in nature. The saponifiable oils as they are freshly prepared from their sources are a chemical combination of glycerin and fatty acid. Under certain physical and chemical conditions, this combination is broken down partially or wholly. For this reason there is always a certain amount of free fatty acid present in all saponifiable oils. Freshly-prepared oils made from fresh clean raw materials may contain only ½ per cent up to 5 per cent fatty acid. The longer the oils have been stored the larger will be the percentage of free fatty acid present.

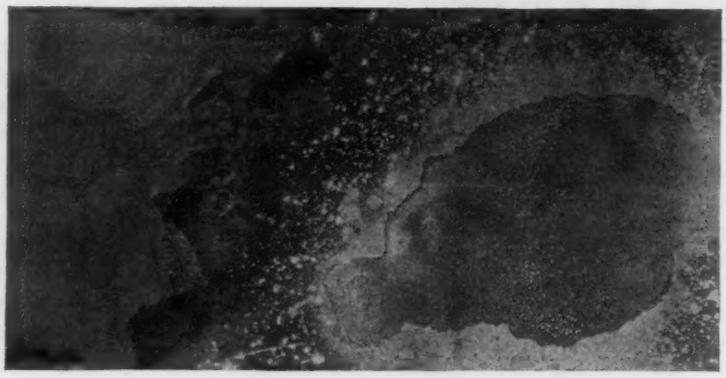


Fig. 2. Showing the difference between a mineral acid such as sulphuric on the right and a fatty acid such as oleic on the left. Both attack the copper, but note the more or less crystalline character of the acid pits on the metal, due to mineral acid. Note the curdy or grease-like character of the etching caused by the fatty acid . . . . . .

The two principal fatty acids used in the textile industry are oleic acid and stearic acid. These are prepared products or by-products made by separating the glycerin from the fatty acid portion of the neutral oils or naturally occurring oils and fats. It will be recalled that we stated in the first part of the article that a fatty acid was a neutral oil which had been deprived of its glycerin.

The fatty acid known as oleic acid by some is also known as elaine and red oil by others. It is made use of in a number of ways such as a stock lubricant for woolen and worsted trade and in combinations with mineral oil to make shoddy picking oils. It is also used as a base for making soap and fulling compounds.

Stearic acid is the other fatty acid used in the textile trade. This is a very hard, white, wax-like material used extensively in the preparation of cotton softeners and finishing materials. It is also used in manufacturing candles and in the rubber industry Stearic acid enjoys no nickname nor is it spoken of by any other synonym.

Fatty Acids and Mineral Acids.

There may be some confusion in the minds of some of the readers as to the difference between fatty acids and mineral acids. Both fatty acids such as oleic acid and mineral acids such as sulphuric acids will turn blue litmus paper red. Both combine with alkalies and have a few other common properties. The main difference is their reaction when exposed to different conditions. Mineral acids will attack vegetable matter such as wood, cotton, linen, etc. Animal or vegetable fatty acids will not.

Fatty acids do not mix with water, whereas mineral acids mix with water in all proportions.

Both fatty acids and mineral acids have a destructive action on metals, but in case of the latter the action is more severe. When fatty acids attack metals, the resulting product is an insoluble soap, it has a greasy or oily feel and handle and forms in a sort of a curd. Mineral acids produce salts having a definite crystalline structure and in most cases are soluble in water. Fig. 2 shows the action of a fatty acid on a piece of copper in comparison with the action of a mineral acid on the same metal. Note the different effects.

It has been mentioned in the early part of this article that the unsaponifiable oils could be of mineral origin. There are oils obtained from animal sources that are not wholly saponifiable and yet are not mineral oils. These unsaponifiable animal oils are called animal hydro-carbon oils.

Hydrocarbon Oils.

Hydro-carbon oils are obtained by the destructive distillation of animal matter. When fats or products containing fatty matter are heated in a closed retort or still, a certain amount of saponifiable matter is broken down in its chemical structure and a product is produced that is not combinable with alkali. It is this portion obtained wholly from animal or vegetable sources, that will not combine with alkali that is spoken of as animal hydro-carbon oils. The largest and most prolific source of animal hydro-carbon oils is found in the destructive distillation of the fatty matter removed from wool fleece. This fatty matter is a body secretion of the sheep. It is removed from the wool fibers by soap scouring or a solvent extraction process. It has a number of names, the most common are, degras, wool grease, etc. When wool grease has been distilled, after freeing it from foreign matter it contains approximately 50 per cent saponifiable matter and 50 per cent unsaponifiable matter known as animal hydro-carbon oil.

To many the word grease denotes a solid fatty material while an oil designates a liquid substance. When the phrases "wool oil" and "wool grease" are mentioned, they are far from being related materials.

Wool grease is the solid matter referred to in the previous paragraph, that is to say, natural fatty matter occurring in the wool fleece. It protects the fibers while growing and its method of collection and recovery and also purification is outlined above. Its chemical composition and physical appearance are somewhat altered by the means of recovery and purification; nevertheless, wool grease always has the characteristic odor and characteristic greasy feel.

Wool Oil.

Wool oil is an entirely different proposition. Wool oil is used in the manufacture of woolen materials from wool that has been freed of its grease. Wool oils are often called "stock lubricants" and they may be used on shoddy or recovered fibers and in this case they are frequently spoken of as "shoddy oil." It is used in the manufacture of woolen yarns, and in this case it is frequently spoken of as "worsted oil." Wool oils as a class of oils mean nothing as to their composition. They may be composed of a straight mineral oil, they may be straight animal or vegetable oils such as lard oil or olive oil. Again they may be mixtures of several different oils such as combinations of all three. Some of these wool oils will mix with water and make a milky white emulsion, where others will only mix with water when alkali has been previously dissolved in the water such as borax water or soda ash solution.

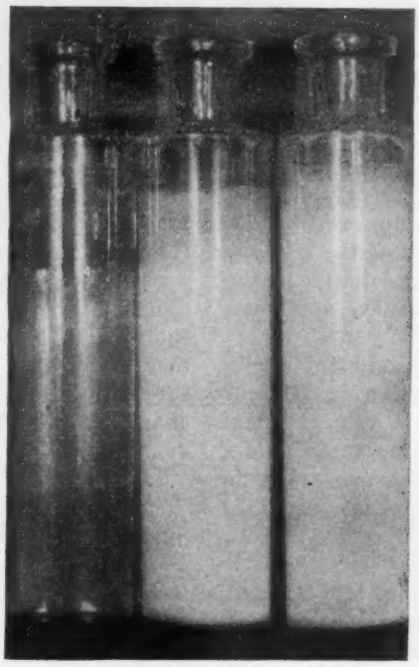


Fig. 3. The bottle on the left contains a mineral oil, white rose oil and a borax solution. Note that mineral oils are not emulsifiable in alkaline solutions. The middle bottle contains a fatty oil, olive oil, and borax solution. Note the perfect emulsion. The bottle on the right contains white rose oil, olive oil, and borax solution. Note the effect obtained by mixing a fatty oil and a mineral oil. The fatty oil and borax carry the mineral oil into the emulsion. . . . . .

Non-Emulsifiable Oils.

Non-emulsifiable oils are those oils that are not capable of being made into an emulsion by ordinary means. By this we mean that they do not contain any fatty acids or fatty matters that can be converted into a soap. Most silk, woolen and rayon workers, who use oil in the straight or neat form, speak of the oils they use as non-emulsified oils, meaning to say they do not use the oil diluted with water. This does not mean that the oil cannot be emulsified if it is mixed with water or other materials. Any oil that contains saponifiable oil can be emulsified by mixing it with an alkaline solution and the resulting mixture will be an emulsion which will stand for some time. Thus olive oil is mixed with borax solutions and the emulsion or milky mixture, is made, that will stand for some time. All the other animal and vegetable oils can be treated in the same manner and similar results can be obtained.

Mineral oils on the other hand, do not act in this way. A very interesting experiment can be conducted which will clear up this point. Take a mineral oil such as a white rose oil and mix it with water or an alkaline solution and it will separate instantly into two layers, the oil layer on top and the water layer on the bottom.

Olive oil on the other hand, when mixed with an alkaline solution will make a milk emulsion that will not separate for some time.

By adding 10 per cent to 15 per cent of this olive oil to the white rose oil or mineral oil and then mix this mixture with the alkaline solution it will be found that it turns distinctly milky and will stand for some moments before it separates. The greater the amount of saponifiable oil added to the mineral oil, the more permanent will be the emulsion.

Fig. 3 illustrates this point.

Therefore, it would be well to be very particular when referring to the emulsifiable or non-emulsifiable properties of an oil to be sure that one understands whether it can or cannot be emulsified and if it can be emulsified what means should be adopted to make the best emulsion from the oil.

When a wool oil or other textile oils, for that matter, mixes with water and makes a milky solution of more or less stability, it is said to be a self-emulsifying oil. This is due to the fact that the self-emulsiyfing oil breaks up into small oil globules that are dispersed or become suspended in the water of their own accord. Practically all the self-emulsifying oils contain some or all saponifiable matter, either in the form of a soap or a sulphonated oil.

The soap or sulphonated oil present in the self-emulsifying oil mixes with the water and this in turn emulsifies the balance of the oil present.

An oil that is not a self-emulsifying oil relies upon alkali combining with some of the fatty matter in the oil to form a soaplike body and this in turn emulsifies the remaining oil.

Self-emulsifying oils are often called soluble oils because they readily mix with water. This is not strictly a true definition of a soluble oil. Strictly speaking, an oil cannot be said to be soluble unless it mixes with water to make a clear solution. If an oil and water are mixed together and the resulting solution is milky or white in color it is not a true solution, but merely a mechanical mixture of oil and water. Under the microscope one can see globules of oil floating about in the water. Common usage of the term "soluble oil" as denoting a self-emulsifying oil has changed the meaning of this term, so today we must accept the phrases "soluble oil" and "self-emulsifying" oil as being synonymous.

In examining a non-emulsifiable oil and trying to

(Continued on page 497.)

Slashing and Weaving Subjects Discussed at Meeting in Montgomery

Reported by Robert W. Philip

HIGH-PRESSURE lubrication for looms; percentage of stretch on slashers; amount of starch in size mix; moisture content in sized warps; causes of loom stops; composition versus metal valve discs; V-belt drives; preventing oil drip; making a mill's own supply parts—these were among the important subjects discussed at the meeting reported in this story.

AN INTERESTING and helpful discussion of subjects pertaining to weave room operation and mechanical problems featured the meeting held in Montgomery, Ala., on Friday, January 30th, by the Alabama-Mississippi-Louisiana Division of the Southern Textile Association. R. J. Jennings, assistant superintendent of the Lanett Mill Division, West Point Mfg. Company, Lanett, Ala., as chairman of the group, presided, assisted by Walter C. Taylor, secretary of the Association, and John H. Howarth, also assistant superintendent at Lanett, who led the mechanical and weaving discussions, respectively.

The sessions were held in the Whitely Hotel, with a morning session devoted to weaving, a "Dutch" luncheon at which Thomas H. Rennie, vice-president of the Avondale Mills, Pell City, Ala., spoke, and a short afternoon session primarily for master mechanics, at which mechanical subjects were covered.

High-Pressure Lubrication on Looms.

In opening the weaving discussion, Mr. Howarth submitted as the first question: "What are the possibilities of high-pressure lubrication on looms? What are the particular benefits to be gained from installation of same?"

H. L. Pruett, overseer of weaving, Lanett Mill, reported that they have about twelve looms equipped with high-pressure lubrication, as an experiment, but have not had time to make a thorough test on them. He said they have about 30 grease cups on each loom, with everything that can be equipped carrying the cups, and that so far the idea seems good.

"We have 24 looms equipped," said W. L. Underwood, overseer of weaving, Shawmut Mill, Shawmut, Ala. He said they started in about five weeks previously, and had not finished the application, but that so far he is well impressed; one loom so equipped had been run 100 hours with one lubrication, and the bearings seemed to be still well lubricated. Their looms are fully equipped with high-pressure lubrication with the exception of the pick balls.

Mr. Howarth asked if anyone had found difficulty with the grease coming out the side of the bearing on the crank-shaft and cam-shaft applications. He reported a few instances of this trouble, pointing out where compressed air is used for cleaning, this grease is blown onto the work. He added, however, that the high-pressure equipment engineer had pointed out that this would tend to form a ring of protection around the bearing and keep the rest of the grease from coming out. Mr. Howarth emphasized the value of the equipment on the sand roll and rocker shaft — places ordinarily difficult to lubricate—adding, however, that Mr. Pruett had felt if it was worth-while there it should be helpful elsewhere on the loom as well. Mr. Howarth pointed out that when a sand roll is not kept properly lubricated, it has a tendency to "sneak away" from the oiler, and wears to an eccentric, which is not a good thing. A. C. Boyd, assistant superintendent, Langdale Mill, reported that they have several looms equipped with the system on the sand rolls, and that they like it fine. It was explained that the high-pressure fittings are applied to ordinary loom bearings, no change in the type of bearing being made.

Percentage of Stretch on Slashers.

There was next a brief discussion on the second question, "Under average conditions, how much stretch should there be in the yarn on the slasher and how much stretch can you have without getting into trouble? Give number of ends in warp and yarn number."

It was reported that at Lanett, on 3,000 to 5,000 ends of 12½s, 14s and 17s, the stretch on the slasher figures out around 2½ per cent, and that no ill effects come from this apparently. Roscoe O. Roberts, general superintendent, Alabama Mills Company, asked how the stretch was determined. The method explained was to take it from the gearing, and also to mark a certain length of warp going into the slasher and then measure between the marks as the yarn comes off.

Amount of Starch in Size Mix.

The chairman next asked, "How many pounds of 40 fluidity starch should be used per gallon of water for sizing carded broadcloth?" No makers of broadcloth responded, and the question was changed to apply to any stated product; it also being explained that the question had reference to the amount of starch in the finished size.

It was reported that at Lanett, the percentage runs about 14 ounces of starch to the gallon of finished size, finishing 250 gallons, with 210 to 220 pounds of starch, on a warp for heavy sateen, with about 11½ per cent size applied. This, it was stated, is 40 fluidity starch.

In connection with the fluidity of starches, Mr

Howarth brought up again a subject which had been discussed at previous meetings in the Association: that there is no standard of uniformity among the different starch manufacturers as to what is 40, or 20, or 60 fluidity starch. The fluidity, he explained, is determined by testing the rate at which the starch solution passes through an orifice, and different starch manufacturers use different equipment for this test. This accounts for the fact, as Mr. Howarth said, that if a sample of one company's 40 fluidity starch is sent to another's laboratory, the findings may show it to be of a different fluidity. At the same time, Mr. Howarth added, any reputable starch manufacturer can duplicate from sample the actual fluidity of a starch, though they may designate it as of a different fluidity. He mentioned the point to emphasize that it is not practical to order from a different manufacturer by the designation of the fluidity furnished by another manufacturer, but that by submitting a sample, a mill can secure a duplicate.

R. J. Jennings, of Lanett Mill, who is chairman of the Ala.-Miss.-La. Division of the Southern Textile Association.

C. H. Cole, manager, Micolas Cotton Mills and Opp Cotton Mills, Opp, Ala., reported the use of approximately one pound of starch to one gallon of finished size. Z. H. Mangum, general superintendent, Avondale Mills, reported virtually a similar practice in their plants at Alexander City and Sylacauga.

Moisture Content in Sized Warps.

The subject of moisture content in sized yarns came up next with the question, "What percentage of moisture content do you find best in sized yarns for best results in weaving? In what manner do you test it and how often?"

Mr. Pruett of Lanett, reported that they calculate about 7 or 8 per cent moisture content from the slasher; explaining that this is determined by taking a sample of the warp in an air-tight glass jar to the company laboratory for bone-dry test. Mr. Roberts reported that they have an oven in Birmingham for making their tests, and that it sometimes goes down to 6½ per cent. Mr. Howarth explained that it is still necessary to go to a large extent by the "feel" of the warp, and pointed out that the condition of the weather has an influence on the moisture content of the warp.

B. R. Cole, secretary, Micolas Cotton Mill asked if, after all, it is not true that, regardless of the moisture content coming off of the slasher, when the warp is stored in the weave room for a while—as is usually the case — that the yarn in the warp will adjust itself to the atmospheric conditions in the weave room; and that this adjustment process continues while the warp is slowly being used in the loom itself. Mr. Howarth thoroughly agreed with this, but added that if a warp has too much moisture in it, while the outside layers on the beam may become adjusted, the inner portions are liable to mildew. On the other hand, he explained, if the warp is sent in to the weave room dried out too much or baked, it will be too brittle and not run satisfactorily in the loom.

Roscoe Roberts pointed out further that if the moisture is taken out of yarn entirely, it cannot be restored fully and the breaking strength will be adversely affected.

The purpose of the discussion was not to determine a standard amount of moisture for warps, since this would be so dependent upon the amount of moisture for warps, since this would be so dependent upon the amount of size, local conditions, etc., but rather to put emphasis upon each mill's determining the happy medium for their own work, rather than take chances by going to the extremes of too dry or too wet.

Causes of Loom Stops.

The chairman next asked what are the loom stops caused from poor preparation of the yarn, interpreting this to mean preparation all the way back to the cotton field, as well as on the slashers. Mr. Tapley asked if Lanett had installed ball bearings on the slasher creels in an effort to reduce trouble from slasher preparation. Mr. Pruett replied that they do have ball bearings on the slasher creels, but that the main purpose is the protection of the journals, running wooden-head beams. He added that these beams must be weighted just the same as those running in plain bearings. Mr. Howarth here asked for information on the speed of slashers on 5,000 ends of 14s yarns, which he is running at 16 yards a minute. He said his speeds range from 16 to 23 yards per minute, depending on the number of yarn and number of ends.

Left, J. H. Howarth, who conducted the morning session, and, left, Walter C. Taylor, who led the afternoon mechanical discussion.

One man reported a speed of 45 yards a minute on 1,600 ends of 26s. Another man said 30 yards a minute on 2,700 ends of 16s; another 30 yards a minute on 1,950 ends of 14s, and another 17½ yards a minute on 5,000 to 6,000 ends of 15s. Z. H. Mangum, in discussing the prevention of loom stops, asked E.

S. Dunn, superintendent of the Sylacauga plants, to report on his experience with the use of ball bearings on the presser roll on his slashers. Mr. Dunn reported that, "we find it helps our running in the weave room; it takes the drag off of the yarn"; and the bearings do not leak grease, he added in response to a question from C. H. Cole. A man from Alexander City reported that he has seven slashers so equipped. Mr. Howarth stated that with the ball bearings on the slasher creels at Lanett, the beams were a little more trouble to doff. Mr. Underwood asked Mr. Howarth if the stretch would be the same on 3,000 ends as on 5,000, and Mr. Howarth replied that this would be practically the same because of the gearing on the machine.

Henry D. Agnew, agent, LaFayette Cotton Mills, LaFayette, Ala., who spins only, asked as to whether the weavers would prefer more or less moisture in the yarns for weaving. Thomas H. Rennie pointed out that standards allow 7 per cent. Z. H. Mangum further pointed out that when the moisture is put into the yarn while spinning by having adequate humidification properly controlled, the yarn is much more satisfactory for weaving than when moisture is applied to the yarn after spinning, and others expressed themselves in agreement with this view.

It was mentioned here that it is a practice in England to run the warp through a heating arrangement prior to slashing, and it was asked whether this was done for the purpose of drying out the yarn or of heating it. Mr. Rennie explained that whichever was the purpose, the result was that the yarn was dried. However, he explained, in dyeing indigo it is necessary to give the material a cold bath, otherwise satisfactory dyeing will not be secured.

Advantages of Control Equipment on Slashers.

"What benefits have you found in the use of controls on slashers?" the chairman next asked, explaining that the question referred to equipment for controlling and recording the temperature and time elements, and stating that he had found a more even percentage of size is applied with the use of controls on the size box. He asked Mr. Pruett to discuss the question, and Mr. Pruett said that "I have had them so long that I would not know how to operate without them. I would hate to run a weave room without them." Mr. Howarth pointed out the advantage of the recording control from the standpoint of the superintendent's office; for instance, he said, every morning he looks over the charts from their thirteen slashers, and can tell whether the temperature of the size box on each was held up to their standard of 200 degrees. "It is almost necessary to have the controls on the size boxes, because you should keep the size boiling all of the time; ours stays around 198 and 199, and we have a check on it."

The chairman extended the question to inquire if those present would recommend a complete installation of controls on size box, kettle, storage tank and cylinders, but no one discussed this feature; though it was brought out that the use of controls on the cylinders saves steam.

"What is the greatest possible variation in width in cloth on plain work on E Model Draper looms?" was the next question, the effort being to determine how much variation from standard the mills find they are getting. It was reported that on 40-inch goods, the width variation ranges from ⅛ to ¼-inch from standard width, and this was considered good. The chairman asked Mr. Rennie to discuss the question, and Mr. Rennie replied:

Variation Limits in Cloth Width.

"The question of variation in the width of a piece of goods depends on a great many factors. It depends on the let-off, how closely your section man watches the looms, and how closely the second hand watches the goods. The least variation in the let-off will change the width of the goods. If you have a beam on the loom with a crooked or worn gudgeon, you will have a variation in the width of the goods; or if your sand roll, or cloth roll as we call it, isn't taking up properly you will have a variation in the width. The only thing I have ever found to prevent variation is *eternal vigilance*. We have always made it a rule to have a man look over the looms at least four times a day with a measuring stick. You can set a loom as perfectly as an expert section man can set it, but it will not stay there; he must keep going back to it."

W. I. Calhoun, overseer of weaving, Langdale Mill, reverted here to the causes of loom stops due to poor preparation, stating that on his wide looms of 71-inch width, he had considerably more breakage in the center of the cloth than he has on goods of similar sley on narrower looms. Mr. Howarth suggested that because of the wide harness, the harness were "lazy" in the center and were not clearing properly. Charles H. Warren, of the Draper Corporation, explained that Mr. Calhoun's goods were considerably heavier than the others present were accustomed to seeing on Draper looms, and that the cause of Mr. Calhoun's trouble seemed to be largely in the vibration between the drag roll and the whip roll; that the remedy was to stiffen the drag roll and vibrating whip roll to prevent the back-lash which does not develop on narrower looms.

The discussion here reverted to the subject of variations in cloth width. J. H. Cannon, overseer of weaving at Tallassee Mills, stated that the only thing he had ever found was eternal vigilance and watchfulness. Mr. Underwood said he had also found this to be the best remedy, adding that frequently the atmospheric conditions have a great deal to do with the cloth width. Mr. Howarth said that they generally make allowance of from ¼ to ⅜-inch over the required width in weaving.

Variation in Section Beam Run-Outs.

"What variations in run-outs on section beams do you get, and what can the slasher room do to reduce this waste?", was the next and final question submitted by Chairman Howarth.

"If you do not watch the weights on the two back beams, and keep the bearings regulated on the

creel stands, you will have excessive trouble," reported John Baker, overseer of slashing at Tallassee.

Mr. Howarth asked if anyone had ever been able to make the sets run out even. F. G. Tapley, of Avondale Mills, Alexander City, said he had never been able to make perfect run-outs, but that he had come pretty close—down to a pound of waste on six beams of 15s. He agreed with Mr. Baker that the weight on the two back beams would make them longer; stating that if the weight could be distributed the run-outs might be more even.

Mr. Tapley asked if anyone had tried using yardage counters on warpers, instead of the customary measuring devices, explaining that the effect of the weights on the slasher creel could be determined, and the beams for this part of the creel run shorter. He added while speaking that he had had the weighted beams to run out first at times.

Mr. Underwood suggested keeping the ropes carrying the weights well rubbed off; stating that these will frequently become gummy and stick. W. R. Cook of Selma, Ala., said he had found it helpful to keep the measuring roll on the warper varnished.

B. R. Cole asked Mr. Howarth if he gets more even run-outs through the use of wooden-head beams from high speed warping, and the reply was, "Just about the same." Mr. Pruett said that, "while the spinner at his mill gets back all of the yarn on section beams, and he does not handle it, their waste runs about two ounces per beam. Mr. Howarth added that with the wooden-head beams, properly trued up, they get better sizing.

A question was asked by a representative from West Boylston Mfg. Co., as to the proper speed for a vertical brusher on a 23 x 23 fabric, of 20s/8 yarn with 5½ turns, weighing 14½ ounces per square yard. It was suggested that he experiment by starting off brushing lightly, and going ahead until he gets the results desired.

Tight- and Slack-Sided Cloth.

C. V. Vickers, of Avondale Mills, Alexander City, suggested a problem of one-sided cloth, making a 1.80, 4.00-yard broken twill. C. H. Warren suggested seeing that the beams are trued up, that the take-up roll and whip roll and harness are level, and that the loom bearings are in good shape. He explained that in the changing of the harness, if the yarn closes on the shuttle before it gets out, or before it gets home, there is a tendency to stretch the yarn on one side. Roscoe Roberts said he had the trouble once and located it on a slasher which was not lined up.

Mr. Vickers stated that the trouble appeared always on the battery end of the loom, and that on the same construction, from the same slashers, it would show up on some looms and not on others, and that it would come and disappear. This, it seemed, would eliminate the influence of previous preparation, as was reported to be the trouble by several of those present.

As the morning session was concluded, Henry D. Agnew, of LaFayette, asked for information as to where he could see long draft spinning running on soft yarn from 9s to 18s, but no one present furnished the information.

A "Dutch" luncheon followed the morning session, and after the luncheon a brief discussion on a list of subjects pertaining to the master mechanic's work was held under the direction of Secretary Taylor.

Discussion on Valves.

In starting the afternoon discussion on mechanical subjects, Mr. Taylor presented the following as the first question, "Compare advantages and disadvantages of metal disc and composition disc globe and check valves, and state instances in which either type is superior."

B. R. Cole indicated a preference for the composition discs, pointing out that this type of disc, according to his experience, is much easier to renew. R. H. Vincent, master mechanic, Langdale Mill, stated that he prefers the composition disc up to 180 pounds pressure, using hard or soft rubber, depending upon the application.

"I would rather use the composition disc up to a 2-inch valve, for steam, air and water," said W. L. Brown, general master mechanic, Alabama Mills Company. "It is easier to renew, and I find that with the metal disc, the men we have to operate the valves will close them too tight, and when they do that we have to regrind them. The composition discs will give to pressure received in closing the valve, and they will give more service."

Mr. Brown added that above 2-inch valves he uses the metal disc. The cost of the composition disc, he said, is lower than that of the metal disc.

R. C. Norman, master mechanic, West Boylston Manufacturing Co., Montgomery, stated that, "My experience has been that the composition disc is preferable because the composition is softer. If a valve starts to leak, especially on the steam lines, the condensation will cut a trench in the side of the metal disc, whereas the composition will wear out rather than the seat, and you do not have to re-face the seat to make a tight job. Also, there is a certain corrosive action that takes place between two metal surfaces wearing together." J. R. Edwards, master mechanic, Shawmut Mills, stated that in their plant they do not use any pressure higher than 90 pounds and he did not discuss the subject.

B. R. Cole pointed out that on the check valve with composition disc, he considers that the composition is superior because when it closes at every stroke of the pump, it has a cushion.

J. T. Whatley, master mechanic, Tallassee Mills, said, "I agree with the other gentlemen. The composition does not damage the valve up to 150 pounds. From then on I use Monel metal. The wire drawing does not damage the valve as much with the composition as it does with the metal."

At this point Mr. Vincent emphasized that one difficulty in connection with valves is that very few mechanics specify the use to which a valve is being put, when ordering; and very few supply houses are

(Continued on page 499.)

The Inclined Mule-Spindle Ring Frame

An English development combining features of mule-spinning with the ring frame, providing a subject for interesting study.

AN INTERESTING DEVELOPMENT in spinning is the inclined mule-spinning ring frame, developed in England, which combines certain features of the mule frame with the essential operations of a ring frame. Through the courtesy of the *Textile Manufacturer*, a leading English publication, the accompanying illustrations and description of the new type of frame is presented as a matter of interest to American mill men. The following is an abstract from the description of the machine as it appeared in a recent issue of the *Textile Manufacturer*:

"The patent inclined mule spindle ring frame allows a more gentle treatment of the thread, resulting in practice in higher spindle speeds and lower twist for given counts. Both these mean greater production and lower costs, and the latter more desirable yarn. Higher counts can be spun from the same cotton.

"As the name indicates, the frame has a long, tapered spindle similar to a mule spindle, which is set at an angle inclined toward the rollers. [See accompanying scale drawing.] The yarn passes from the rollers direct to the spindle point, coils several times around the blade, and then passes through the traveler, and is wound on the lower portion of the spindle. The spindle blade is of sufficient length to carry the coils, even when the cop is full. The ring rail and rings are normal except for the slight tilt which corresponds with the inclination of the spindle.

"The length, inclination, and shape of the spindle, the distance from the spindle to the front roller, the angle between the spindle point to the nip of the roller, and the position and angle of the roller stand, have all been very carefully determined after exhaustive experiments. A horizontal rod or anti-ballooning device controls the coils on the spindle and the ballooning between the spindle and the traveler at all spindle speeds, and in every winding position.

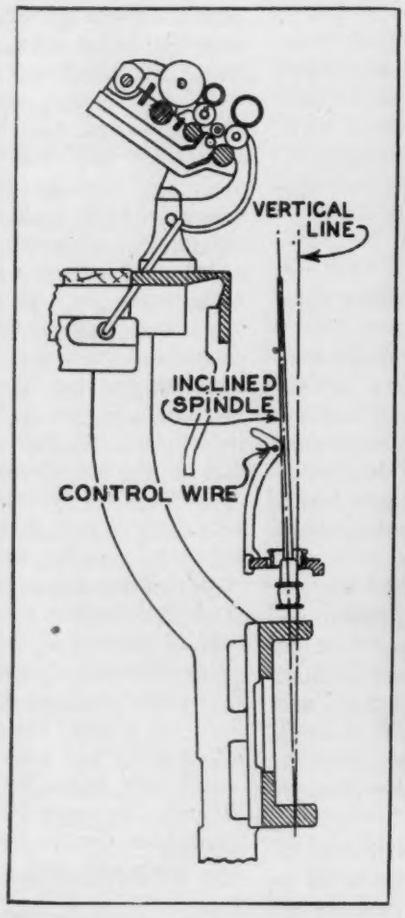
"The traverse motion of the ring-rail is designed to build a mule type of cop [instead of using the customary ring spinning bobbin] which insures a tight-wound nose similar to that of the mule cop. A cross-wound build is made with accelerated traverse at the nose by using a specially shaped cam, and the downward traverse is quicker than the upward lift.

"It will be observed that the lappet (thread guide) has been dispensed with, and, amongst other results, piecing-up is correspondingly simplified. On ring frames yarn breakages usually occur above the thread guide—that is, between roller nip and thread guide. The elimination of the lappet is an important point. The length of the yarn being twisted is always constant.

"Twist is put into the yarn between the nip of the roller and the spindle point, and the spindle blade carries the yarn to the traveler. It may be that the uneven tension which the old type of ring frame exerted on the yarn is obviated, thus permitting yarns of the softest twist and finest qualities to be spun on the new frame on a very small diameter of spindle similar to that employed on a mule."

It is pointed out that the yarn which is carrying around the traveler has already been twisted; a tight wind being obtained, and more length placed on a given size of package. The weight of the traveler employed is apparently of less importance, and it is possible to spin on the bare spindle, though actually this is not recommended. The use of a thin paper through-tube is recommended.

It is declared that among the chief features is the greatly increased length of yarn which can be put on the cop, reducing doffing, knots and waste.



Drawing, Courtesy "Textile Manufacturer"

Photo, Courtesy Howard & Bullough, Ltd.

Photograph and sectional drawing of Inclined Mule-Spindle frame. (Note absence of thread-guide and angle and length of spindle.)

UPS AND DOWNS WITH THE COUNT

Sixth of a Series of Articles on Textile Designing

IN THIS sixth installment of his series on textile designing, the author discusses Rib Weaves and Basket Weaves. As previously stated, clippings of preceding installments of this series will be furnished to those requesting them.—The Editor.

Rib Weaves.

RIB WEAVES are distinguished by having bands or ribs running straight across or up and down the fabric. They are divided fundamentally into two groups: warp ribs or filling ribs, depending on which system of threads is employed to make the rib. In the case of a warp rib, the rib line runs with the filling and is marked by certain picks which determine its borders. These picks are the ones on which the float of the warp threads changes. In a common warp rib, half of the ends are floating on the face of the cloth while the other half are floating on the back. Thus the odd ends are on the face while the even ends are on the back, and vice versa. The number of picks between these successive changes determines the size of the rib.

In rib weaves, only one system of threads (warp or filling) is seen. The other system serves pretty much as a "stuffer". A warp rib usually has many more ends per inch than it has picks. The opposite is true of a filling rib. Whichever system of threads is used as a stuffer is usually composed of comparatively coarse yarn, since it is covered up anyway.

From the design it would seem that an equal amount of warp and filling would be shown; this is not the case, however, as the rib yarn slips over and covers the yarn composing the other system of threads.

Rib weaves may be made with ribs all the same size, or with ribs of two or more different sizes. Fancy rib weaves are constructed by combining sections of both warp and filling rib weaves. We usually select a motif as the base of a fancy rib weave and let each square of the motif equal a certain number of ends and picks in the design. The filled-in squares of the motif represent a certain number of ends and picks of a selected warp rib, and the sinkers of the motif have the same significance with regard to ends and picks of a filling rib weave. The motif is commonly painted in at the upper left of the design proper. Care should be taken to select weaves which fit in well with the number of ends and picks decided on and which combine well with each other.

To construct a common warp rib we paint one pick of a plain weave, then we paint successive picks just like the first one until we have a float of the desired length (N. B.—By "float" we mean the number of threads any given thread weaves over or under before changing to the other side of the cloth). Then we reverse the weave and continue until we again have reached the desired float.

Thus in Fig. 28 we have a 4-4 warp rib. The figure shows four repeats of warp and two repeats of filling. Fig. 29 shows a 5-3 filling rib with two repeats of warp and eight repeats of filling. After dis-

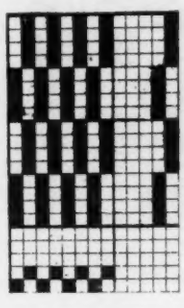


FIG. 28

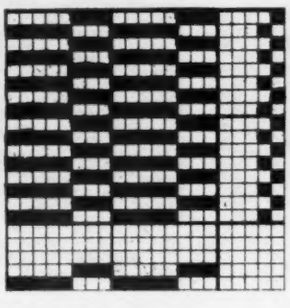


FIG. 29

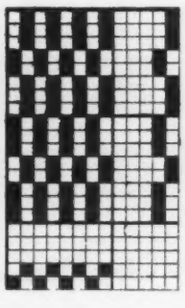


FIG. 30

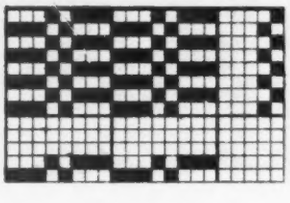


FIG. 31

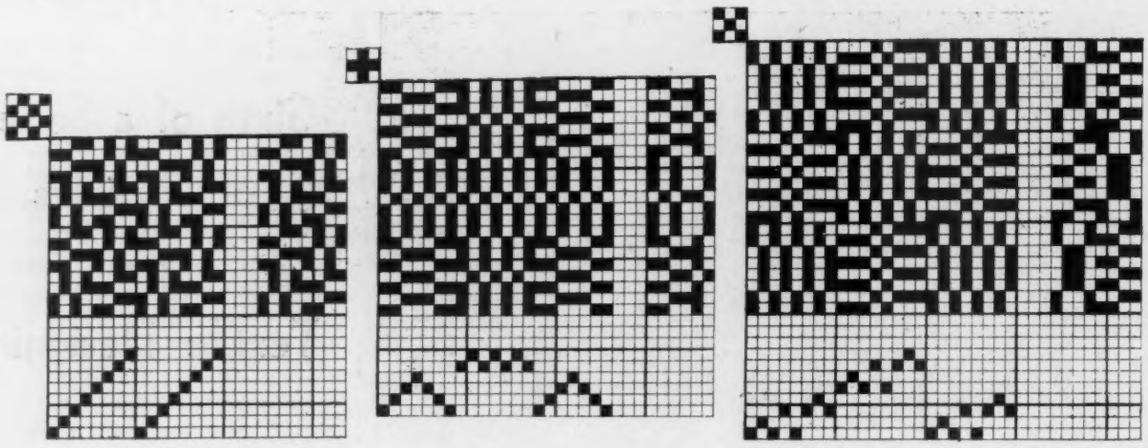


FIG. 32 FIG. 33 FIG. 34

cussing the warp rib so thoroughly it does not seem desirable to go into detail about filling rib. If you have grasped warp ribs, you will not even have to study filling ribs.

Fig. 30 shows a 3-2-3 warp rib. Here we have four repeats of warp but only one repeat of filling. Don't let this confuse you, but you will see that we have to paint the warp ends 3-2-3-3-2-3 before we have a complete repeat and get back ready to begin again just like we started.

Fig. 31 shows a 3-1-1-3 filling rib with two repeats of warp and four repeats of filling. Have you noticed that the drawing-in drafts for all common warp ribs and the chain plans for all common filling ribs is just an old plain weave?

Well, if you boys and girls on the back row there will put your shoes back on we'll send one of you to the board and let you make a pretty fancy rib design to show the superintendent when he comes to pay us a visit. That's all right, keep your chewing gum.

Suppose we start off easy with a plain weave as a motif and let each square of the motif represent four ends and four picks. Then let's use a 2-2 weave for both warp and filling ribs. This won't give you a very fancy design, but it will make it easier for you to understand some of the elementary points of fancy

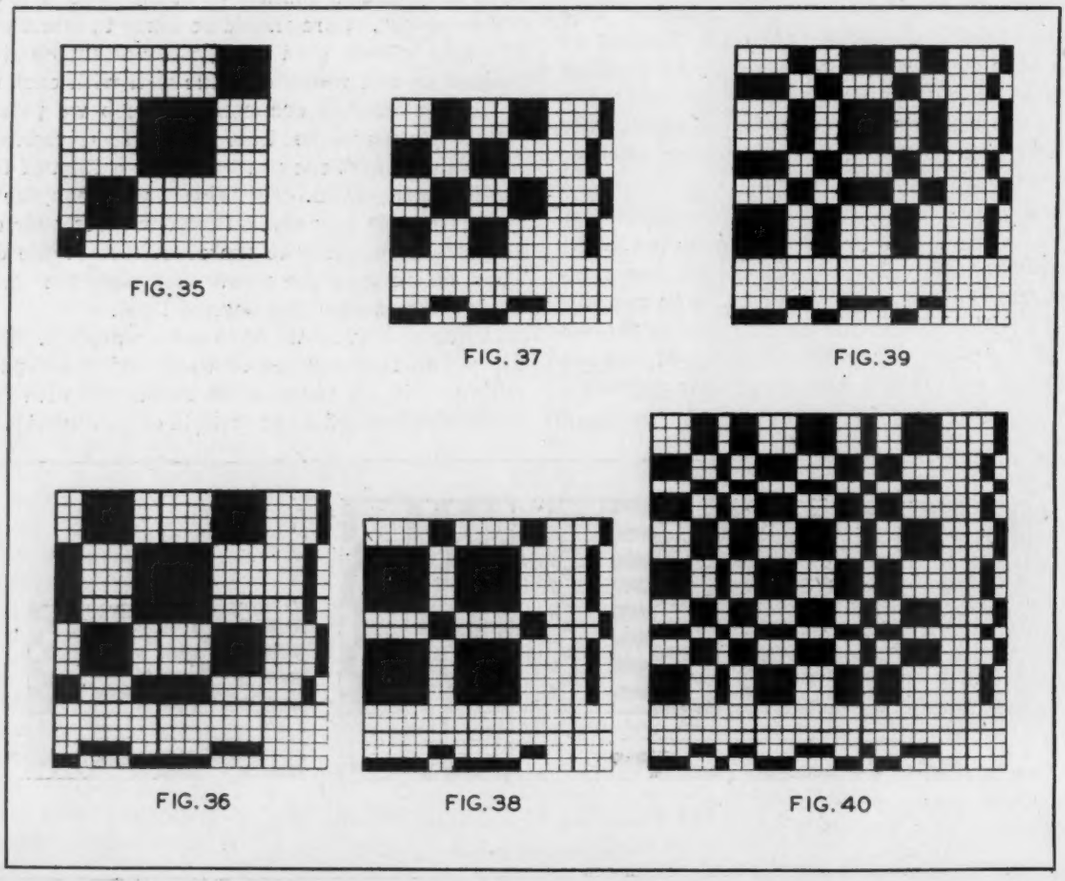


FIG. 35 FIG. 37 FIG. 39

FIG. 36 FIG. 38 FIG. 40

rib designing. Now when we decide to let each square of the motif represent four ends and four picks, we have to select a rib weave which will fit nicely on this number of ends and picks. A 2-2 is just about the only one, although we might use a 3-1. Of course, we couldn't use a 3-2 because the space allotted in the design would not be big enough for it. When we get to more elaborate designs of this class you will see that weaves that balance toward both ends from the middle point are the most effective, such as 4-2-4 or 3-2-1-2-3 for example. Let's crawl before we walk, however.

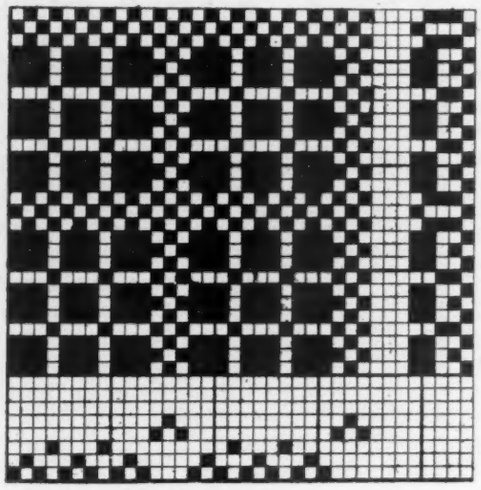


FIG. 41

Fig. 32 then, shows two repeats warp and filling of a plain weave as a motif, and also the design produced by using the 2-2 rib according to this plan. (You should always show the same number of repeats in the design as are shown in the motif.) You will immediately see that it has lost all rib effect. That is due to the simplicity of the motive and of the rib weave used, and to the small number of ends used. While we followed instructions exactly, we really got a right neat little granite weave. If you will mark the design off into blocks of sixteen squares each, however, you will see these blocks are filled with a 2-2 rib weave.

In Fig. 33 we have one repeat warp and filling of a fancy rib. Each square of the motif equals seven ends and seven picks of the design. For the warp rib we use a 3-1-3 weave; for the filling rib let's use a 2-3-2. In designs such as are shown in this figure there are several different methods of treatment when two blocks of the same weave are adjacent. They may be made to reverse (as in this case) or each block of warp rib may be made just alike, thus making extra long floats at their junction points. This is also true of filling rib blocks. Also when we start in to fill a block with rib weave we may put the first line in either with sinkers or raisers. The design can be greatly changed in this way.

Fig. 34 is a fancy rib, each square of the motif representing eight ends and eight picks. Warp rib, 2-4-2. Filling rib 3-1-1-3. This is an example of treatment somewhat different from that used in Fig. 32. Why not make an original or two? You can make them better than this. Also, since Fig. 34 is only one repeat each way, paint two repeats each way and note the development. You can quickly paint two repeats of the motif and get an idea of it. By the way, when you look at a design, hold it at all different heights and angles. Hold it out, nearly flat, at about arm's length and turn it slowly one way and another. Many designers, including us, can see effect better with the eyes narrowed down to slits.

Basket weaves are very good to look at, but unless the sley and pickage are very high the fabric employing these weaves will be loose and very likely to be pulled out of shape easily. The larger the blocks are, the less firm the fabric will be. One of the best and most popular applications of the basket weave is to woolen sport clothes, both for men's and for women's wear. The weave is quite suitable for this purpose because the yarns are coarse and it is desirable to have air-space in the fabric and also to have it somewhat elastic and flexible like knit goods. The weave derives its name from the fact that the weaves have been used for generations in the manufacture of baskets. It is customary to make the blocks on the foundation diagonal perfect squares. This establishes good proportion between other blocks in the design. There is no limit to how elaborate a basket can be made, but regardless of the extent of its development it can always be made on two harness, and these two harness always work directly opposite to each other.

Please look at Fig. 35 which shows the foundation diagonal for a 2-4-6-4 basket. By this we mean that the first block (starting in the lower left-hand corner) is a 2 square, the next block (continuing on an upward diagonal line) 4 square, the next block 6 square, and the next block 4 square. Now these foundation squares govern the size of the other rectangular areas in the design. Just remember that the blocks alternate with warp and filling effect, and you will have no trouble completing the design. The finished design, one repeat, is shown in Fig. 36.)

Fig. 37 shows two repeats, warp and filling, of a 3-3 basket.

Fig. 38 shows two repeats, warp and filling, of a 5-2 basket.

Fig. 39 shows one repeat of a 4-2-2 basket. In connection with this design, please note that we have had to paint the *foundation diagonal twice* to get *one repeat* of the *weave*. This is because the foundation diagonal consists of an *uneven* number of blocks (in this case it is three.) Inasmuch as the whole design must be alternate blocks of warp and filling effect, when we have an uneven number of blocks in the foundation diagonal we must paint it twice to properly complete the repeat, otherwise we would get two blocks of warp and two blocks of filling coming together.

Fig. 40 shows one repeat of a 3-2-1-2-3 basket.

Fig. 41 shows two repeats warp and filling of a combination of plain weave and basket. This adds improvement to the appearance, and the plain weave adds great firmness and strength to the whole fabric.

CURRENT TOPICS

Talk of the Month

IT WAS ASSERTED early the past month by R. C. Stephenson, president of the American Bankers Association, that the low point in the business depression had been struck about Dec. 20, adding that buyers were coming into the market to replenish stocks. Up to recently the demonstration of this truth has not been widespread, perhaps, but in several lines of industry it was noticeable after the first month of this year that buying had been rather better than was forecast at the end of 1930, even if still moderate. Such a development gives substance to the theory that the revival in business, like the preceding slump, would make its approach all unseen, so to speak.

Looking at the early record of the year for raw cotton and its products, we have encouraging signs of the character indicated. The raw commodities have shown a persistent bearishness even this year, but the American cotton market at the end of the first five or six weeks of 1931 was a rather notable exception. Cotton had made an advance of $3.50 a bale for spot on the New York market when many other raw materials were still declining to new lows for the period of depression. At the same time the Association of Cotton Textile Merchants of New York showed that unfilled orders for standard cotton cloths had increased 9.9 per cent during January and that sales had exceeded production by 18.3 per cent.

For a long time it has been evident that raw materials of various kinds were at "bargain" levels, but it takes a need to give anything value at any price. Thus it needs demand for goods to create a value for cotton. The statistical position of American cotton was distinctly bearish of itself early in the year and mill production was kept sharply down, as shown by the statistics for January, but there was at least a real tendency toward increase and this was reflected in the raw material.

Retailers Need To Replenish.

MORE AND MORE the need for replenishment among retailers has been manifest. Yet the tendency to caution has found mills, up to recently at least, facing buyers who wanted to operate only on the recessions. It is natural that manufacturers should want to expand operating schedules, to give employment and reduce abnormal overhead, but a persistent curtailment policy until buyers realizing the stability of prices find it advantageous to cover their requirements adequately is the reasonable and profitable course. Weakening on prices to get orders postpones the day of profitable manufacture, especially when the market is essentially sound and buyers' needs actually are growing.

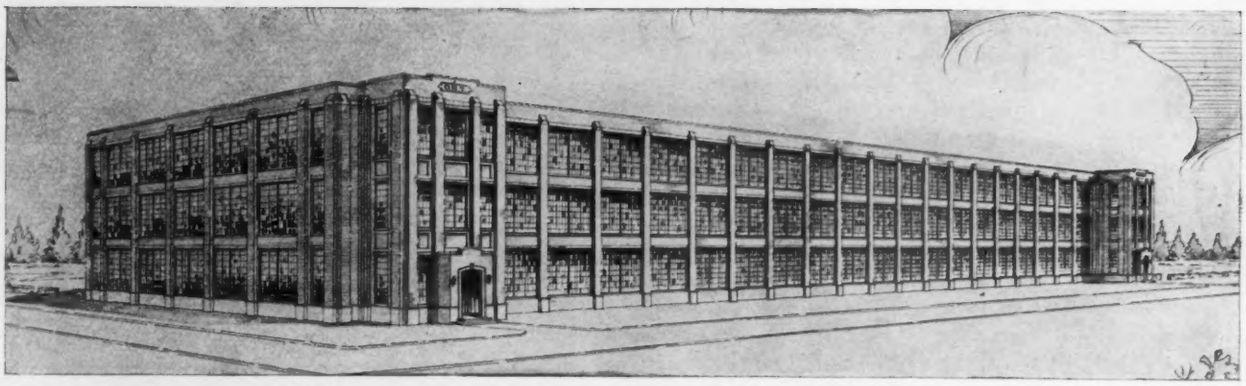
In this connection, there is food for thought among manufacturers in the words of Thomas B. Hill, president of the Silk Association of America, at the annual convention of the National Retail Dry Goods Association. He urged the formation of a joint committee of manufacturers and retailers, to meet periodically and discuss merchandising problems. Among the points that he cited was that drastic reductions in supply of fabrics, color assortments and style hurt the retailer's sales possibilities. Manufacturers will quickly agree that replenishment of retail stocks would stimulate their business and mill employment, while almost anyone who has visited the stores will aver that the return of broad consumer buying has been delayed by the tendency to stint on variety and scope of lines shown.

Retailers have been showing more interest in merchandise, yet they have continued a cautious policy toward covering spring requirements, or had up to the middle of February. On the other hand, if there is to be any compensation for the reduction in returns because of the lower level of prices for everything, the buying of consumers must be stimulated to exceed the volume of recent years and not make merely a recovery. If the manufacturer can help the retailer to promote the necessary larger distribution, through the formation of a joint committee, it were well to foster the suggestion given.

Realizing New Possibilities.

ENTIRELY UNCONNECTED with the above proposition, but a kindred idea, is one broached by Kenneth Collins, executive vice-president and publicity director of R. H. Macy & Co., Inc., of New York. He says: "In this country there are hundreds of thousands of generic items, innumerable pieces of machinery, that have never been exploited. Not more than five per cent of the 50,000 to 500,000 items carried in a large department store, for example, are ever advertised or featured in window displays, etc. In their lines manufacturers also have a tremendous number of items, the possibilities of which have been allowed to lie practically dormant. If both manufacturers and retailers were to be awakened to a realization of these promotional possibilities—if they were to go through their lines, advertise here and boost there, put extra selling effort through men on the road, etc.—the combined and cumulative result would, I believe, prove strikingly beneficial." Making his argument more convincing, he adds: "At Macy's we have done considerable experimentation along this line and the results have been successful."

Somewhat of a corollary of this is a suggestion from another industry of the advantage of diversification in individual manufacturing plants. The recent decree allowing the packers to enter new lines of production and thus use to fuller extent their potential facilities or capacities, is an illustration. The diversification of distribution has gone to untold length, until the buyer hardly knows whether to go to the drug store for dry goods or to the department store for drugs.



Architects' drawing of the spinning mill to be erected at Austell, near Atlanta, Ga., by the Clark Thread Co., of Newark, N. J. The three-story building is to be approximately 500 x 135 feet, and will be equipped with about 40,000 spindles. Excavation work on the plant site has already been started. J. E. Sirrine & Company, Greenville, S. C., are the architects and engineers. The general contract has been awarded to A. K. Adams & Co., of Atlanta, and E. S. Draper will handle the village planning.

How far this idea can be adopted in textile manufacture is not to be suggested here, but in a general way it is stated in the *Iron Age* that a study of the experience of industrial plants reveals that the highly specialized or "single-product" plants were not able to maintain their employment levels during 1930 as well as did concerns which made a variety of products appealing to different classes of consumers. The writer might have added, regarding the latter, the concerns which made a variety of products offering different appeals to the same consumers.

All Buyers Now Sophisticated.

SOME IDEAS seem to burst into clear perspective over a wide area in a moment; a sort of spontaneous combustion. We join with the trade papers in other lines of industry in voicing the idea that modern means of communication have made all consumers sophisticated buyers. This idea has been possessing our minds in unformulated state for a matter of many months, if not several years, but it warrants expression at this time because the fact becomes steadily more emphatic and is a definite consideration for traders everywhere.

The style's the thing. On this point, the *Shoe and Leather Reporter* interestingly asserts that not only has style affected every industry, but "it is all pervasive in a geographical sense. The increased means of communication and transportation, the national magazines, the radio and the screen pictures enable the people in Portland, Oregon, to know what is seen in Portland, Maine. Today shoes must be styled not for any section, but for the forty-eight States of the U. S. A. and for the 122,000,000 inhabitants thereof."

We are reminded immediately that only recently one of the leading coutourieres of Paris talked from that world center of fashion over the air through a national hook-up in this country. Which of itself does not give the woman far from the centers of style distribution a look at the up-to-the-minute fashion, but the talk tells her what to look for in the magazines or on her early visit to the nearest metropolis.

In the *India Rubber World* we read that "the consumer of rubber and other goods is a much more exacting, independent and sophisticated person than the buyer of even but a few years ago and the sales methods of yesteryear do not impress him as they did the old-time buyer." Under the significant title "The Consumer Be Pleased," this paper cites the case of the manufacturer of autos who, when buyers begged for car bodies with tints, told them: "You can have any color you like, provided it be black." His salesrooms became as sable as the cars he offered. Yet the editor says there still are manufacturers "who are turning out the same old types of products that customers accepted 20 years ago and they wonder why buyers drift elsewhere."

A Merchant View on Cotton Depression.

SOMEWHAT of a reproach upon cotton manufacturers in this regard is made by James C. Erskine, a well known merchant, who recently expressed himself comprehensively in *The Style Trend* on the broad economic outlook. He refers to the fact that the cotton industry has had a depression all its own the past six years and his explanation is that it was "brought about by inside conditions, such as frequent changes of style; cutting down of the individual yardage used by the consumer; over-production; unethical methods of doing business; failure to recognize the modernizing of merchandising which has taken place in every other major industry; lack of expansion in constructive advertising of cotton fabrics, which would result in bringing home to the consumer the many uses to which cotton textiles can be put, other than the stereotyped channels."

Fortunately the final recognition of many of these retarding elements has started on foot action aiming toward them, particularly the matter of overproduction. Mr. Erskine's point about advertising is interesting, however, for its application directly to the cotton industry of the theory of Mr. Collins, that industrialists are not realizing on the possibilities of exploiting many marketable products. Even this idea has been recognized in the cotton industry, as is obvious from the existence of a "new uses"

department of the Cotton-Textile Institute. Despite this recognition and the furtherance of the same object by the Government, it is well for the manufacturers to have this subject impressed upon them anew for their individual attention.

On the constructive side of this discussion, the possibilities have an example of unusual uses in menus of cotton. Perhaps it is not surprising that a southern railroad could be persuaded, as has been the Texas & Pacific company, to propagate the further use of the southern staple by adopting cotton menus for its dining cars. The railroad reproduces Texas scenes in colors on the menus. More notable is the fact that in France there has been developed the "geographical" tablecloth. This tablecloth has for its pattern an authentic map. Here are two examples of novel potentialities in cotton.

What the Southern Mills are Doing

ACCORDING TO RECENT ANNOUNCEMENT, A. K. Adams, of Atlanta, Ga., has been awarded general building contract for the new plant of Clark Thread Co., to be built at Austell, Ga. J. E. Sirrine & Co., are the architects and engineers. and E. S. Draper, of Charlotte, N. C., has been chosen to make plans for first village development.

It has been announced that a new mill company is being organized in Hickory, N. C., and that a charter will be secured within the next few weeks.

It was recently announced that Ellenboro Mfg. Co., Ellenboro, N. C., was being thoroughly overhauled to commence operations.

The North Carolina State College has made installations of the new 1931 type R Breton Minerol Process equipment, purchased from Borne Scrymser Co.

It has been announced that the contract on the new plant to be established in Kingsport, Tenn., by the Tennessee Eastman Corp., will be let sometime in March. The plant will manufacture cellulose acetate yarn and have a capacity of 2,500,000 pounds annually. Production is expected to start October 1, 1931.

Part of the new machinery is in operation at the Trenton Mills. This mill has recently been rebuilt, the old plant having been destroyed by fire last year.

Thomson Cotton Mills, Thomson, Ga., and property has been sold to C. L. Upchurch of Athens, Ga., and Max Robbins of Indianapolis, Ind.

Seaboard Public Service Co. will electrify the Spofford Mills, Inc., formerly Delgado Mills, Wilmington, N. C., and install additional machinery.

J. C. Sanders and R. B. Risser have acquired the Bonham (Texas) Division of Consolidated Textile Corp., and incorporated it with a capital of $200,000.

Victor Levy, of New York, has leased a building in Greensboro, N. C., which he is remodeling and installing machinery for the manufacture of flannel nightwear.

Ranlo Mfg. Co., Gastonia, N. C., has overhauled some of its machinery and has removed and replaced other machinery with modern equipment, among which is included four of the latest Foster winders.

Willingham Cotton Mills,Macon, Ga., are installing a Hermas 4-knife shearing machine and 8-roll brushing machine purchased through Carolina Specialty Co., of Charlotte, N. C.

Carl Stohn, Inc., of Charlotte, N. C., have purchased through Carolina Specialty Co., two Johnson warp sizing machines, one a three-cylinder and one a five-cylinder machine, the five-cylinder machine being especially built for acetate yarn.

Erwin Cotton Mills, Cooleemee, N. C., are installing one of the new 1931 type spraying heads to be used with their oil spraying equipment purchased from Borne Scrymser Co.

H. A. Groves, president of Groves Mills, Inc., Gastonia, N. C., has announced plans for a finishing plant at East Gastonia, to begin operations in 90 days. The new plant will cost approximately $150,000.

Dilling Cotton Mills, Kings Mountain, N. C., are installing a new Johnson warp sizing machine and Sipp-Eastwood horizontal Swiss warper, purchased through the Carolina Specialty Co., of Charlotte.

Cumberland Silk Mills, of Rockwood, Tenn., are erecting a plant which will have 60 silk looms. This company also maintains a plant at Brewton, Ala.

Kingsport (Tenn.) Silk Mills are installing additional new equipment, which they expect to increase their production one third.

Cotton Comment

New Orleans, February 14th, 1931.

EXCEPT for periodical slight recessions, the trend of the cotton market remained upward, contract and spot values, compared with one month ago, showing sharply higher. Much encouragement was derived from the ability of the market to advance in the face of the comparatively large stocks of American, the recent lock-out at Lancashire, the weakness in silver and the political unrest in India, but these features were evidently more than offset by some improvement in the demand for spots in the South, trade buying, price fixing, short covering, more favorable domestic textile trade advices and the somewhat more cheerful feeling in Wall Street, which is reflected in a higher New York stock market. The monthly report of the British Board of Trade was rather discouraging compared with January of last year, but encouragement was derived lately by reports that the labor troubles in Lancashire have been settled and because of recent more favorable trade advices from India.

ASSOCIATION OF COTTON TEXTILE MERCHANTS OF NEW YORK JANUARY STATISTICS

Yards—	January 1931 4 Weeks	December 1930 5 Weeks	January 1930 5 Weeks
Production	202,149,000	234,052,000	323,287,000
Sales	239,106,000	182,656,000	292,034,000
Shipments	210,597,000	226,951,000	331,481,000
Stocks	355,514,000	363,962,000	452,819,000
Unfilled orders	317,465,000	288,056,000	391,571,000

January sales of domestic cotton goods were 118.3 per cent of production against 78.0 in December this season and 90.3 in January last year. Shipments were 104.3 per cent of production against 97.0 in December this season and 102.5 in January last year. Stocks at the end of January decreased 2.3 per cent against an increase in December this season and 2.0 and a decrease in January last year of 1.8. Unfilled orders at the end of January increased 9.9 per cent against a decrease in December of 13.3 and a decrease in January last year of 9.2.

BRITISH BOARD OF TRADE REPORT FOR JANUARY

Year—	1931	1930	1929
Exports of yarns, lbs.	11,000,000	13,000,000	17,000,000
Exports of cloth, yards	156,000,000	313,000,000	379,000,000

CENSUS REPORT

United States—Bales—	This Season	Last Season
Consumption, lint, January	454,188	576,160
Consumption, linters, January	49,346	62,694
Consumption, including linters, January	503,534	638,854
Consumption, lint, 6 months	2,466,432	3,314,345
Consumption, linters, 6 months	334,096	426,509
Consumption, including linters, 6 months	2,800,528	3,740,854
Mill Stocks, January 31st	1,613,475	1,825,793
Stocks in public stg. & Whs., January 31st	7,939,454	5,404,731
Stocks in mills, pub. stg. & whs., Jan. 31st.	9,552,929	7,230,524
Stocks in mills, pub. stg. & whs., Dec. 31st	10,037,152	7,739,675
Active spindles during January	25,611,458	29,177,228
Active spindles during December	25,525,820	29,047,030

American Cotton— Bales—	This Season	Last Season
Week's in sight (marketed)	125,037	86,188
In sight August 1st to February 13th	12,313,603	13,205,600
Exports from U. S. inc. Canada for week	77,600	116,600
Exports from U. S. Aug. 1st to Feb. 13th	4,749,900	5,212,600

SPINNERS TAKINGS OF AMERICAN COTTON

August 1st to February 13th—Bales—	This Season	Last Season
North and Canada	933,000	1,370,000
South	2,846,000	3,502,000
Foreign	3,616,000	4,294,000
World	7,395,000	9,166,000

"Absolutely, Sir!"

"We Can Lick that Competition to A Standstill With Saco-Lowell-Roth Better Drafting"

Agent: "Well! here's another yarn order we lost because our breaking strength was short of requirements, and the business goes to a mill with Saco-Lowell System of Spinning."

Supt.: "With better stock we could produce a yarn that would fully meet their breaking strength specifications."

Agent: "Sure we could, but the higher cost of stock would eat up all the profit on the job. Are you sure you've done everything possible in the mill to bring the yarn strength up to requirements?"

Supt.: "Absolutely, Sir! I'm convinced we must do one of two things:—use better cotton or install Saco-Lowell-Roth Better Drafting to meet this competition."

Agent: "How about other long draft systems? Is Saco-Lowell's the only one?"

Supt.: "Oh, there are other systems that recommend longer drafts, but we aren't selling long drafts—we're selling yarn. If you want quality in yarns and low spinning costs, we must have Saco-Lowell-Roth Spinning. It's the only system that gives the break-test we are competing against."

The above is a dramatized account of an actual situation which has resulted in another installation of Saco-Lowell-Roth Long Draft Spinning. Soon after the above conversation took place we received an order for 30 long draft frames. Recently we received a duplicate order. Are you, too, losing business because you can't give quality at a price?

SACO-LOWELL

MANUFACTURERS OF TEXTILE MACHINERY

147 MILK STREET, BOSTON, MASS.

CHARLOTTE, N. C. SPARTANBURG, S. C. ATLANTA, GA.

WORLD'S VISIBLE SUPPLY OF COTTON, FEBRUARY 13th

Bales—	This Year	Last Year
American	8,007,388	5,832,639
Other kinds	2,485,000	2,720,000

TOTAL AVERAGE RAINFALL IN TEXAS, IN INCHES

Year—	1931	1930	1929	Normal
January	2.82	1.81	2.11	1.82
Nov. to Jan. inclusive	7.43	6.60	7.45	6.32

As to the new crop outlook, there were beneficial rains in the interior of late, especially in the recent drouth areas, which will put the soil in condition for plowing, and Texas seems to have a good season in the ground, particularly in the early producing districts, but the winter has been comparatively mild thus far, which is favorable for insect survival, and sales of mules, horses and fertilizer are reported light compared with about this time last year. However, private advices are to the effect that early season soil preparation made fair-to-good progress during the week ending February 11th, with preparations well advanced.

The necessary adjustment of the economic and agricultural situation in the cotton states appear to be in process of development and making progress now. There has been less buying of livestock and of commercial fertilizer. Nevertheless, opinions appear widely divided as to whether the South will make a sufficient decrease in this year's cotton acreage that is warranted under present depressed conditions, due to comparatively low prices, occasioned by the existence of comparatively large stocks of old crop cotton. However, it is possible that the reduction in the cotton acreage will be important, as more food and feed crops will probably be grown, perhaps at the expense of cotton.

This year, therefore, history is likely to repeat itself, as it did in 1921 and 1927, following the making of large crops in 1920 and 1926, so far as the reduction in acreage is concerned. In 1921, January to April inclusive, the average price of Middling cotton at ten southern markets was 12.39, and the cotton acreage was reduced 14.5 per cent. During the corresponding period of 1927 the average price of middling at the ten southern markets was 13.50, and there followed an average reduction in acreage of 14.0 per cent.

Last Wednesday the average price of Middling at ten southern markets was 10.11, which was 2.28 cents lower than the average price, January to April, inclusive, in 1921, and 3.39 cents below the average price for the same period in 1927. In view of the fact that present prices for cotton are much lower than they were in early 1921 and in early 1927, it is reasonable to expect as large or larger reduction in the cotton acreage this spring than occurred in the two years cited herein.

According to the American Crop Service, issue of February 11, receipts of horses and mules at eight southern markets during the period August to December inclusive, of 1930, were 18,650 against 56,851 for the corresponding time in 1929, saying in part: "While the correlation between horse and mule sales and cotton acreage, on account of the increase in use of tractors, is not so exact as in pre-war days, we believe the sales to date indicate substantial cotton acreage reduction."

As regards fertilizer, the same authority states in part: "In the thirteen states of the cotton belt sales during January, 1931, were only 72.0 per cent of those in January, 1930. This brings the average of those states for the two months, December and January, to 79.2 per cent of sales during this period last season."

Although the market has recovered sharply from the season's low level, Middling in New Orleans today quoted at 10.67 against 9.05 on December 15th, last, which represents an advance of $8.10 per bale—there is the possibility of the market working higher since it is reported that the Lancashire lockout has been settled and since trade reports from India of late have been more cheerful. Furthermore there seems to be further improvement in the domestic goods markets, and the general business outlook seems to be recovering, if only slowly. Another favorable feature of the situation is, that while the world's visible supply of American cotton is comparatively large, the world's visible of other kinds is smaller than one year ago. Meanwhile there is a fairly good demand for spots in the South, and the demand may broaden as spring approaches.

New England Mill Situation

February 18, 1931.

CAREFUL REGULATION of their production and a seasonally more active market have joined forces to brighten the situation among the New England fine goods mills during the past few weeks. Mills for a long period had carried a considerable burden of stocks and there had been yardages of distress goods hanging over the market, but the start of the new year saw progress in eliminating such disturbing features and such causes of price cutting and forced selling have been reduced to a minimum. Buyers delayed purchasing against their late spring and summer requirements until a very late date, due to fear of the trend of prices and also to lack of courage in the matter of selecting and styling fabrics, and their recent arrival in the market as buyers of good volume has materially tightened things up and created actual scarcities in some directions.

Fine Goods Market Improved.

The fine cotton goods markets have been stimulated by considerable purchasing of combed voiles of varying grades, with the result that prices of standard makes of 40-inch 60 x 56 hard twist goods have appreciated from around 7¼ cents to 7½ cents up to a quoted range of 7⅝ cents to 7¾ cents. This has been but one instance of a stronger condition even in staple fine cotton goods, which is supplemented by a moderately improved condition of combed broadcloths and by distinct gains in both carded and combed lawns. The lawn situation in relation to the fine goods market has been compared with the print cloth position in relation to coarse yarn goods during the month, so firmly have most mills set their prices. Some mills, it appears, are sold ahead for four to six weeks on staple fine goods of this sort, although of course on a basis of continuing curtailment.

Mills, too, have been doing a good business on fancy cotton goods, in rough or novelty weaves, which have been entered into the lines of some of the leading wash goods houses. A repeat business is currently coming through on such descriptions. Meantime a large business continues to be done in such rayon goods as all-rayon or rayon-filled crepes, lining goods, and other descriptions. Eastern mills appear to be sold ahead for some time on certain types of crepes. A feature of this activity in rayons is the increasing practice among rayon producers in weaving sample pieces of new cloths arranging for their sale in converting or other houses, and allocating the business to some fine goods mill. Some leading mills in New England are declared to be working on such goods under current date, whereas in the past this form of merchandising had been confined to the "commission weavers" who were generally small silk mills through New Jersey and Pennsylvania.

The result of the seasonal increase in business and the regulation of cloth production in fine goods mills has been such as to enable certain New England manufacturers to keep themselves well sold ahead on a curtailed operating basis, or to increase operations, running day and night shifts. The East as well as the South appears to have its night runners who find it desirable to depart from the operating schedules of some mill groups.

Further annual meetings or financial statements of mills in New England for the year 1930 have been coming forward under recent date. The majority of these have been far from encouraging, a great number showing losses and some severe losses. Inventory write-offs and the like appear to have been considerable in some instances. The mills generally are more optimistic, however, looking ahead to a better season and finding themselves in a position of greater solidarity as to the matter of obtaining profitable prices or at least levels at which they can "break even."

Pacific Mills, important eastern and southern textile manufacturers, reported for the calendar year 1930 a net loss of $2,417,886, which figure includes the full depreciation charge of $1,458,801 and inventory mark-down of $862,219.

(Continued on page 477.)

"Three times more service on our roving frames than belting previously used"

Roving Frame, Shelby Cotton Mills, Shelby, North Carolina, showing Goodyear Compass (Cord) Cone Belt in place

Not once taken up, not once taken off, a Goodyear Compass (Cord) Cone Belt stayed in service on a roving frame of the Shelby Cotton Mills, Shelby, N. C., *four years and one month.* "We have used Goodyear Cone Belts exclusively on all our Roving Frames for the past several years, and find that *they give at least three times more service than any other type of belt we have previously used,*" writes Mr. R. T. Le Grand, Treasurer.

Goodyear Belting for cone-pulley drives has protected edges. The envelope wrapping protects the load-carrying core from excessive wear in shifting. In Compass (Cord) Endless construction and in Thor, seamless, construction, Goodyear provides belting ideally suited for textile service: minimum stretch, maximum power delivery safeguarded against fray on edges.

The G. T. M.—Goodyear Technical Man—will tell you about Goodyear Belting for textile service. He decreases costs on belting for frames, spoolers, twisters, looms, carding machines. He saves time and trouble. Just write to Goodyear, Akron, Ohio, or Los Angeles, California, and ask him to call.

THE GREATEST NAME IN RUBBER

GOODYEAR

BELTS • HOSE • MOLDED GOODS • PACKING

New Textile Equipment and Publications

Angle Steel and Sheet Metal Equipment.

The Angle Steel Stool Company, of Plainwell, Michigan, manufacturers of a complete line of factory and office steel equipment, announce a new 32-page condensed edition, Catalog M-S, which they will gladly mail to any interested parties. This new catalog contains a complete showing of their regular steel equipment line, besides the addition of about thirty new patterns created to meet up to date demands.

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Newport Fast Orange FSW.

Being a neutral dyeing Acid Color, possessing very good fastness to light and excellent fastness in most other important particulars, when dyed either by the acid or neutral methods, Newport Fast Orange FSW finds extensive use in dyeing wool raw-stock and slubbing as well as fancy yarns for bathing suits, sweaters, etc., according to the Newport Chemical Works, Inc., Passaic, New Jersey.

:: :: ::

Pontamine Fast Blue RR.

E. I. du Pont de NeMours & Co., Wilmington, Del., state that their new dyestuff, Pontamine Fast Blue RR, is a direct dyestuff yielding brilliant reddish blue shades of excellent light fastness. They also state that it penetrates very well, is exceedingly soluble and sufficiently level dyeing for use on the padder or jig, as well as on all types of machines used for dyeing yarn and rawstock, and that extreme fastness to light and brilliancy of shade make this color exceptionally valuable for application on draperies, curtains, upholstery, and similar materials.

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Simplex Pattern Control.

The Simplex pattern control, invented by J. L. Reynolds and J. H. McKelvey, of Charlotte, N. C., is to be placed on the market soon.

The inventors state that this machine is designed to work in connection with dobby weaving, handling the pattern without the use of box chains, pattern chains or multipliers. Any length pattern may be handled without difficulty, thereby increasing the work that can be done with the dobby, at the same time reducing the cost of changing from one pattern to another to a minimum, according to the inventors.

:: :: ::

Diamond Vulcanized Fibre Catalog.

The Continental Diamond Fibre Co., Newark, Del., recently published a very attractive catalog entitled "Diamond Vulcanized Fibre." It gives very complete information pertaining to the manufacture and uses of vulcanized fibers.

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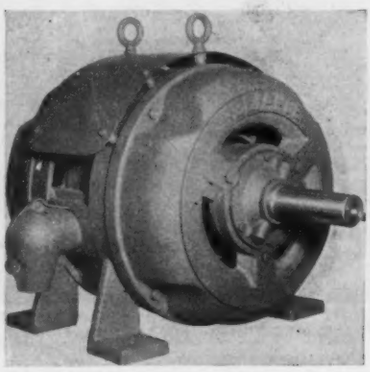
Motors Protected With Drop Covers.

The Reliance Electric & Engineering Co., Cleveland, Ohio, have developed drip covers applicable to either the alternating or direct-current motors that they manufacture.



The covers are used to protect the motors in bad locations from dripping water, acid or other injurious solutions. In spite of the very high grade insulation used for Reliance motors, such covers have been found a great help in keeping the motors clean and lowering maintenance costs, the company states.

:: :: ::

"Something Entirely New in Weaving High-Count Fabrics."

"Something Entirely New in Weaving High-Count Fabrics" is the title of a very attractive and comprehensive booklet just issued by The Steel Heddle Manufacturing Co., Philadelphia, Pa., with southern office at Greenville, S. C. It describes in a most interesting and constructive manner the new double bar staggered harness for print cloth and broadcloth weaving.

The company states that actual savings in two different mills are shown in detail, one being a saving of $137.50 a week and the other $38.96 per week. The company will send this booklet to anyone making the request of them.

:: :: ::

New Rayon Oil.

The National Oil Products Company, Inc., of Harrison, N. J., manufacturers of textile oils are introducing to the textile trade through their representatives a new rayon oil, "Textoyl 1556."

This oil, as developed by the research laboratories of the manufacturer, is of interest to both knitting and weaving plants using rayon yarns, and the advantages claimed by the manufacturer are:

(1) Freedom from corroding fatty acids; (2) Resistance to rancidity; (3) Resistance to oxidation; (4) Low viscosity; (5) Low moisture content—less than 2 per cent; (6) High emulsifiability; (7) Does not cause deterioration of stored rayon.

:: :: ::

New Tycos Time-Cycle Regulator.

Taylor Instrument Companies, Rochester, N. Y., announce the Tycos time cycle regulator, an instrument which finds application in practically every industry. Its operation is independent of temperature or pressure, but can be used to operate in conjunction with either condition. The company points out that in general its use extends to wherever it is desirable to control the duration of operations in prescribed sequence, where such operations can be started and stopped by means of an electrical or fluid operated device.

Several hundred times cycle regulators are in daily operation on unit tire and tube vulcanizers in the rubber industry.

This type of instrument consists of an electrically driven cam which, as it revolves, progressively opens or closes small pilot valves. These valves in turn regulate the supply of compressed air to diaphragm valves, electro-pneumatic switches, or other pneumatically operated devices as may be necessary according to the requirements of the individual applications.

The cam is mounted on a cam shaft which rotates in ball bearings. Steps are cut on the cam corresponding to the number of pilot air valves to be operated. Practically any total revolution of cam can be supplied. Cam speed can be increased or decreased to meet new requirements of the process by substituting new cams and gears and this change over can be easily accomplished by the user.

Bulletin No. 18,000 contains complete description and may be had upon request.

COSTS CUT

BY USING H&B REPLACEMENT PARTS!

WE strongly urge that you use only H & B Replacement Parts in reconditioning your H & B Equipment. They promise lowest ultimate cost, reduce necessity for frequent repairs and keep equipment functioning at highest efficiency.

No round-the-corner shop or jack-of-all-trades can duplicate H & B parts. Our modern equipment, automatic machines, metallurgical specifications and standards of accuracy assure fit and continued trouble-free operation. When ALL costs are accurately figured, you will find H & B parts cheapest and best.

H & B AMERICAN MACHINE CO.

PAWTUCKET, RHODE ISLAND

BOSTON OFFICE
161 Devonshire Street

ATLANTA OFFICE
815 Atlanta Trust Co. Bldg.

· USE ONLY H & B PARTS IN H & B EQUIPMENT ·

NEWS ITEMS *with a Textile Slant*

Rebuilding Service for Equipment.

The Gastonia Textile Sheet Metal Works, of Gastonia, N. C., has announced the installation of facilities for complete service on rebuilding of card screens, spinning frame cylinders, and slasher hoods. This work is taken care of by men of long experience not only in rebuilding service but in actual mill work, it is pointed out. The company has been newly organized and is owned by H. A. Melvin, and the plant is fully equipped.

:: :: ::

Mundet Consolidates Charlotte and Atlanta Offices.

L. Mundet & Son, Inc., 461 8th Ave., New York City, manufacturers of Mundet "Jointite" Cork Products for cold insulation services, for roofing, flooring, etc., announce the consolidation of the Charlotte branch with their branch at 339 Elizabeth St., N. E., Atlanta, Ga.

Mr. Dick, who has been in charge of the Charlotte branch, is now covering North and South Carolina just as before, except that he is now working out of the Atlanta branch.

The company states that there will be no change whatever as regards service, that immediate shipments will be made from the Atlanta branch.

:: :: ::

Group Life Insurance.

The Dixie Throwing Company, located at Greensboro, N. C., has recently adopted the group life insurance idea for the protection of 69 workers. The policy was issued by the Prudential Insurance Company of America for a total of $81,000.

Under the arrangements of this policy each worker is insured in amounts ranging from $1,000 to $2,500, according to the rank or position held and the policy is of the contributory type, the workers and the employing company sharing in the payment of the premiums.

:: :: ::

Robert Hall and Sons Acquire New Patterns.

Robert Hall & Sons, Bury, Ltd., have just acquired the whole of the patterns for the well known Lappet looms from the Anderson Foundry Co., Ltd., Glasgow, who are giving up the making of textile machinery, and state they are prepared to execute orders for new looms and replacement parts.

:: :: ::

Union Special Machine Co. Marks 50th Anniversary.

The Union Special Machine Company of Chicago, manufacturers of industrial sewing machines, is this year celebrating its 50th anniversary. The original company was founded in 1881 as the Union Bag Machine Company, specializing in sewing machines for manufacturing canvas and burlap bags.

The first sewing machine produced by the company was installed in the bag factory of M. J. Neahr & Co., Chicago. This machine operated at a speed of 1,200 r.p.m., and many felt at this time that such a high speed was impractical. It is interesting to note that the next model of the bag machine was introduced at a speed of 2,400 r.p.m. and this was followed by a third model which operated at 3,200 r.p.m. A speed of 4,000 r.p.m. was predicted at this time by one of the members of the concern, but many doubted if such a speed would ever be attained, these feeling that the zenith had been reached at 3,200 r.p.m.

But on its 50th anniversary the company is announcing a machine that has a speed of 4,000 stitches per minute, and by a happy coincidence, the first machine of this type has been installed in the same factory that purchased Machine No. 1 in 1881.

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Ballin Resigns.

William C. Dickerman, chairman of the board of McIntosh & Seymour Corporation, has announced the retirement of A. E. Ballin, effective February 1, 1931, as president and director of the corporation. At a meeting of the board of directors of the company held during February, R. B. McColl was elected president and treasurer of the corporation.

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No Noise.

It is announced by L. Mundet & Son, Inc., 461 Eighth Ave., New York, that H. B. Villiers, a specialist in the elimination of vibration and noise, has been appointed head of their recently created department of natural cork isolation.

The company points out that noise and vibration are very closely related, and that if there is no vibration there will be no noise. Vibration is the cause, noise is the effect, they say. Therefore to eliminate noise vibration must be eliminated.

The company states that the best way to eliminate machine vibrations is to support the machine on mats made of natural cork of correct area and thickness, adding that they carefully compute the thickness of cork mat required for the area. Vibrations are thus eliminated scientifically. It is stated that an inexperienced man will almost invariably distribute the machine weight over too much cork surface. Cork area must be restricted so that the cork will be under the right amount of compression. Sometimes heavy concrete foundations are poured directly on top of the cork and the sides of the foundations are lined with cork of proper thickness and density. The weight of the foundation plus the weight of the machines are calculated to give the cork the proper amount of compression. Vibration and consequent noises are thereby eliminated, the company states.

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Atwood Appoints Southern Manager.

The Atwood Machine Co., Stonington, Conn., recently appointed Frederick Sails as manager of their southern office, located at Charlotte, N. C. He was formerly associated with the Hopedale Manufacturing Co., of Milford, Mass., and more recently with Standard Looms, Inc., of Spartanburg, S. C., in a selling capacity, covering the southern territory.

SOME CONVENTION DATES.

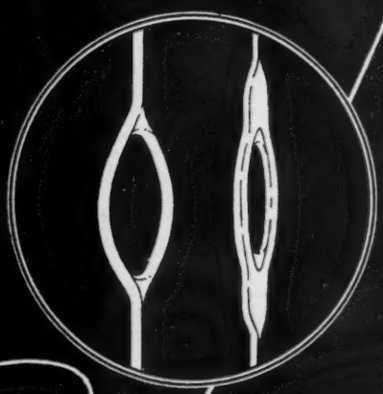
The annual convention of the American Cotton Manufacturers Association will be held in Augusta, Ga., at the Bon Air Vanderbilt Hotel, on April 23rd, 24th and 25th, it has been announced by W. M. McLaurine, secretary and treasurer.

The first session of the convention will open on Friday morning, April 24th. The only function on Thursday, April 23rd, will be the meeting of the board of governors, which is an executive session, to be held on Thursday evening.

* * *

The Southern Textile Association's annual convention is to be held on June 12th and 13th at some place to be announced later by Secretary W. C. Taylor. In the meantime, the Weaving Division will meet at Charlotte, N. C., on March 20th; the Carding Division in Anderson, S. C., on April 3rd; the Eastern Carolina Division in Raleigh, N. C., on April 17th; and the Master Mechanics Division in Greenville, on May 8th.

The "Eyes" Have It!



and there is a specially designed eye best suited to each fibre whether for rayon, cotton, wool, worsted, silk, metal or composition threads.

Just examine any of the eyes of Flat Steel Heddles, notice the way they are finished . . . smooth, firm, just right so that they will not pull, scratch, break or chafe the thread . . . made so that they can give full service from eight to twenty years . . . 5 to 10 times the life of other heddles . . . 1/10 to 1/5 of the cost.

Now, look at the top . . . scientifically crimped to keep the heddles from turning on the heddle rods.

Examine the heddles as a whole . . . real masterpieces of scientific design and workmanship, aren't they?

These are the features that have made Flat Steel Heddles preeminent in their class.

Heddles may be only a small item in your weaving but . . . if they increase production . . . give greater service . . . and less seconds, demand Heddles made by

The top of Flat Steel Heddles are Scientifically crimped to keep the heddle from turning on the heddle rod and binding the warp threads

Steel Heddle Mfg. Co.

2100 W. Allegheny Ave.
PHILADELPHIA, PA.

Southern Plant
621 E. McBee Ave.
Greenville, S. C.

New England Office
44 Franklin St.,
Providence, R. I.

Foreign Offices
Huddersfield, Eng.
Shanghai, China

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

L. R. Gilbert was recently appointed textile technologist with the Bureau of Standards, Washington, D. C. Mr. Gilbert is a former president of the Southern Textile Association, and for several years was superintendent of the Caraleigh Cotton Mills, Raleigh, N. C. He is a graduate of the textile school of North Carolina State College.

Clare H. Draper has tendered his resignation as vice-president of the Draper Corp., Hopedale, Mass., effective March 1st. Although he is to give up active work, he will continue to be associated with the corporation. He has been in charge of patent and experimental work.

L. D. Rivers was elected president of West Knitting Corp., Wadesboro, N. C.; T. C. Coxe, vice-president, and T. J. Covington, secretary and treasurer at the annual meeting of stockholders.

Arthur S. Jones, who has been assistant treasurer for a number of years of the Southern Chemical Cotton Co., Chattanooga, Tenn., was recently promoted to treasurer.

Wayne Davies resigned his position with E. F. Houghton & Co., as manager of leather sales on January 1, and has since joined the sales organization of J. E. Rhoads & Sons as sales engineer. He has had wide experience in transmission, conveying and hydraulic packing design, and is well known in many of the industrial plants in the United States.

A. H. Robbins, general manager of the Eureka Cotton Mill, Chester, S. C., is also in charge of the Springstein Mills, which were recently merged with the Eureka Mills. D. C. Smith resigned as superintendent of the Springstein Mills when the merger became effective.

Frank P. Bennett, president of Frank P. Bennett & Co., Inc., publishers of "American Wool and Cotton Reporter" and "United States Investor," died on February 7th after having reached the age of 77. Mr. Bennett went into the publishing business very early in life, and a very short time after his venture he became a well known writer for the New York Tribune. He founded the "American Wool and Cotton Reporter" in 1887 and remained at its helm until his death. A man whose life work has represented whole-hearted endeavor and accomplishment has been taken from the industry.

H. R. FITZGERALD.

The death of Harrison Robertson Fitzgerald, president of the Riverside & Dan River Cotton Mills, of Danville, Va., occurred on Tuesday morning, February 24th, just as this issue was going to the press.

The immediate cause of Mr. Fitzgerald's death was angina pectoris, physicians pronouncing that the effect was directly from nervous strain and shock incident to the difficulties of the extended strike among the employees of the mills, which had been concluded only a short time before Mr. Fitzgerald's death.

Mr. Fitzgerald was 58 years of age at the time of his death, and was unquestionably a leader in his industry. Operating actively the largest group of mills in the South, he stood among the truly great executives of the country. He had served with distinction as president of the American Cotton Manufacturers Association.

As a man, he was known and beloved universally as a person of distinguished charm and of a charitable and understanding temperament. His intense devotion to the interests of his employees magnified the strain of the extended strike among them.

J. C. Harris, Jr., is now superintendent of the Union Bleachery, Greenville, S. C. He has been associated with the organization for some time in the New York office.

G. R. Hooper, formerly superintendent of the Clover (S. C.) Mills Co., and recently superintendent of the Monroe Mills Co., and the Union Mills Co., Monroe, N. C., has been made superintendent of the Bladenboro (N. C.) Mills, Inc.

S. R. Power recently resigned as superintendent of the Langley (S. C.) Mills, being succeeded by J. N. Badger.

E. Russell Richardson, treasurer and director of the H. & B. American Machine Company, Pawtucket, R. I., died at his home in Providence recently. He had been ill for some time. He spent last winter in the South and showed some improvement on his return, but was unable to take an active part in business during the latter months of his life. Mr. Richardson, who was 64 years of age at his death, is survived by three brothers.

R. B. Suggs, treasurer of the Acme Spinning Company, Belmont, N. C., has also been elected vice-president of the Perfection Spinning Co., of Belmont. He succeeds the late W. C. Wilkinson, of Charlotte, N. C.

R. H. King recently resigned as night overseer of weaving at the Osage Mills, Bessemer City, N. C., to become overseer of weaving at the Martel Mills, Henrietta, N. C.

James A. Greer, of Greenville, S. C., was recently appointed southern representative for the Wickwire Spencer Steel Co., of New York City, manufacturers of "Wissco" card and napper clothing. He has had years of manufacturing experience, having served as carder, spinner and superintendent.

Frank S. Dennis has resigned as assistant treasurer of the Ware Shoals Manufacturing Company, Ware Shoals, S. C.

C. P. Thompson, assistant treasurer of the Trion Co., Trion, Ga., will now have permanent charge of both the Trion and Ware Shoals (S. C.) plants. For the past several months he has had temporary charge of operations at the Ware Shoals Manufacturing Co., Ware Shoals, S. C.

H. W. Ormand recently resigned as superintendent of the Union Bleachery, Greenville, S. C. He has been associated with Union Bleachery for twelve years, having served in various capacities.

Henry Platt, member of the firm of Platt Brothers, Roubaix, France, died January 17th at his home there. He was one of the best known men in the textile business in Europe. With his brother, he developed metallic card clothing, which is now used by a number of southern and other mills.

J. E. McCarvey has resigned as overseer of weaving at the Saratoga-Victory Mills, Inc., Albertville, Ala., to accept a similar position with the Griffin Mills, at Griffin, Ga.

SO MUCH has been claimed for high speed warping that a great many people have become confused and have been led to believe that the improvement in weaving obtained by the use of the Barber-Colman system of spooling and warping is due solely to the superior quality of work done by the warper and that this superior quality is inherent in *any* high speed warper and can be obtained by the use of other systems. The *facts* are that the improvements in weaving are principally due to the use of Automatic Spoolers and not the use of High Speed Warpers. One hundred eighty-nine weeks of loom tests showed the Automatic Spooler saved over eleven times as many loom stops as did the High Speed Warper.

The only way to obtain the maximum improvement in the weave room is by the use of Barber-Colman Automatic Spoolers and Warpers. *No other system will produce as many benefits.*

»

BARBER-COLMAN COMPANY

General Offices and Plant, ROCKFORD, ILL., U. S. A.

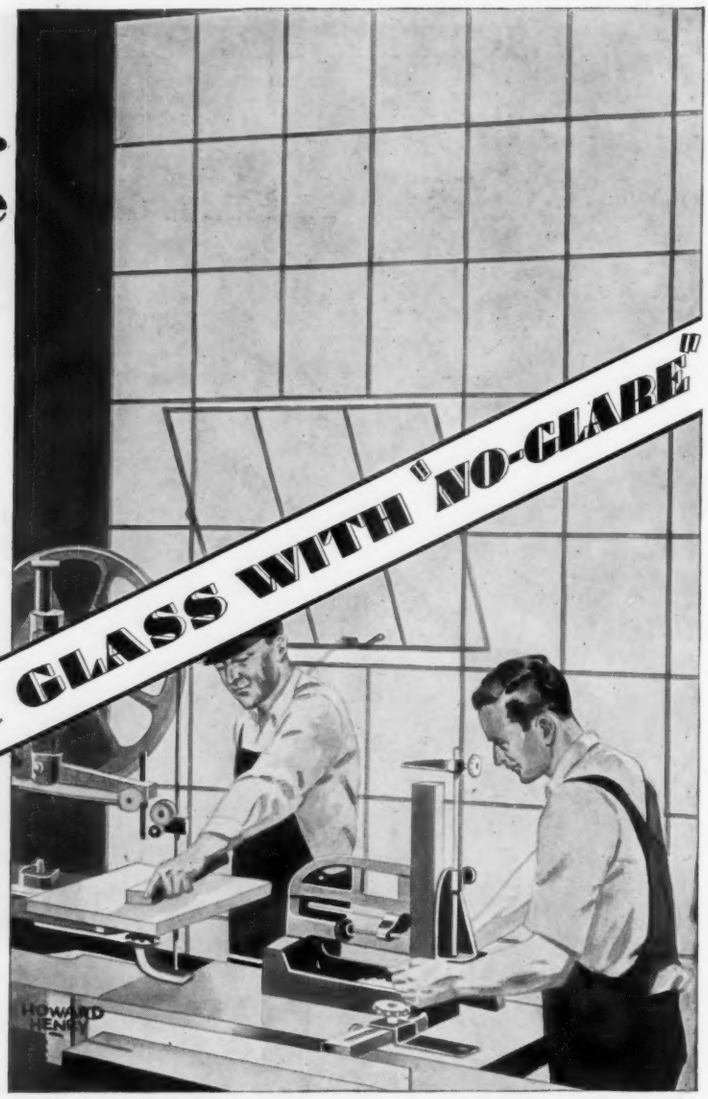
Framingham, Mass. Greenville, S. C.

How to . . . . eliminate

DAZZLING GLARE

without installing shades

JUST COAT YOUR GLASS WITH "NO-GLARE"!



COMFORT. . . . . and Good Work

MODERN mechanical window shade equipment costs a lot of money these days—both for installation and upkeep (repairs and replacements).

All this heavy expense can be avoided by simply coating your glass with **SKYCO No-Glare.** It saves its slight cost many times over in one season.

SKYCO No-Glare is a sky-blue liquid that you paint or spray on the glass of your windows and skylights. The resulting film of **No-Glare** FILTERS the intense glaring sunlight, letting in 94% of the light but rejecting *all* of the tiring glare and 15° of the heat (actual thermometer tests).

Goes on *outside of glass*—yet rain or weather conditions do not affect **SKYCO No-Glare.** Neither will it rub or flake off. Yet you can remove it easily with warm water and a brush. *Just as effective if applied on inside of glass.*

Surprisingly Economical—A single gallon of **No-Glare** covers from 700 to 800 square feet of glass. One application lasts throughout sun-glare season. Absolutely guaranteed.

Convenient Trial Offer

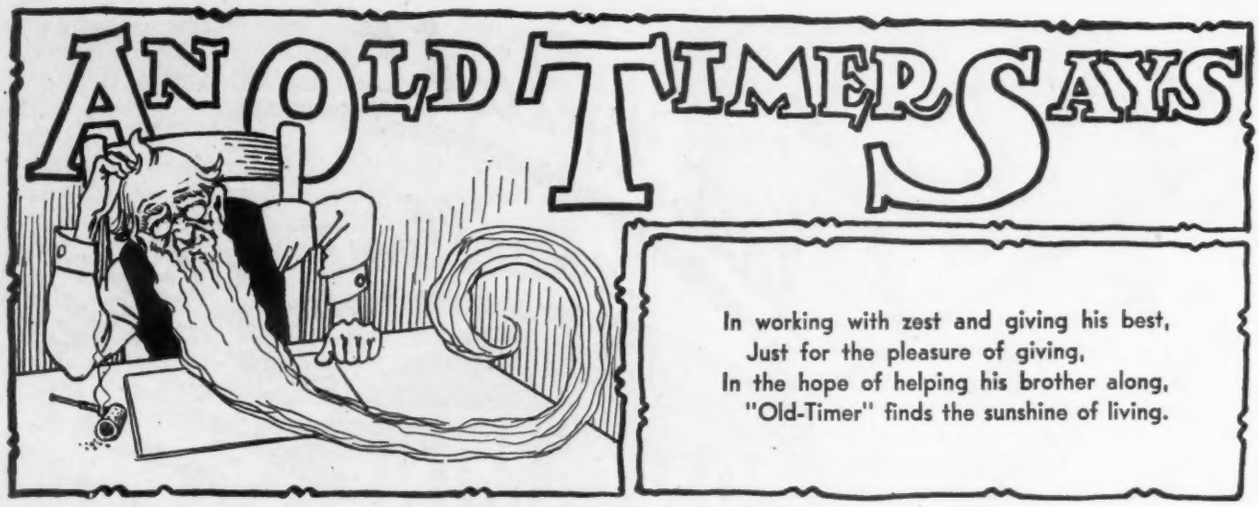
Used by textile mills everywhere. Sold by mill supply houses. Order a trial gallon today at $3.50 and try it on a "glary" window.

THE SKYBRYTE COMPANY, 1919 E. 19th St., Cleveland, Ohio

Reduces Heat 10° to 15°— Yet 94% of Light Maintained

SKYCO NoGlare

Gives a Cool Diffused Light that is Restful


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

It Takes TWO to Co-Operate!

JIM, one of the hardest words in the English language for an overseer or a superintendent to define is co-operation.

How's that, OLD-TIMER? *You have made a pretty broad statement there, and it seems to me that it calls for an explanation. It has always been my idea that we overseers and superintendents practice co-operation more than men who work together in almost any other line of work. Look at what we have done in the Southern Textile Association, especially in the sectional meetings. I do not believe any set of men have progressed more in the last ten years than we overseers and superintendents have and it has all been a result of our co-operation.*

I remember back in 1916 when we were discussing the many phases of light, quick carding, I explained my method to the association and had no idea at the time but that it was the best method in existence. Well, I came back home with more good points on light, quick carding and the results being obtained as explained by several good carders, than I would have learned myself in ten years. Now, if that isn't co-operation, what are you going to call it?"

Sure, JIM! I grant you all of that and more, and that is the very reason I made the first statement that co-operation was the hardest word for an overseer or superintendent to define. All that you have mentioned was and is co-operation of the finest kind, but that is not all the word covers and what I have in mind particularly is co-operation between just *two* men.

It may be overseer and overseer. It may be, and in most cases is, overseer and superintendent, or superintendent and manager, but the point I wish to bring out is that there are probably more men out of a job or at some time have lost their jobs by lack of good honest co-operation than from most any other one source.

Confound it, JIM! I get so worked up over the thing when I begin to try to talk about it that I really cannot express my true thoughts. Just why in the world a bunch of men who are intelligent enough to have risen to the position of overseer and superintendent cannot, do not (or will not, I don't know which), co-operate with each other for their mutual benefit—I am unable to explain.

We are all so everlastingly selfish that we think, each one of us, that we are doing all of the co-operating. You will find trouble in a mill between two departments—between overseer and superintendent, between superintendent and manager or president. You talk to one and you find out that he believes or claims, sometimes conscientiously so, that he is co-operating to the fullest extent.

Now go talk to the other fellow and he will just as earnestly claim the same thing and then you realize that neither of them is really co-operating. There is just simply no honest co-operation going on.

Selfishness is the biggest thing behind the lack of co-operation. We all seem to be afraid *we* will not get the credit for everything that is done.

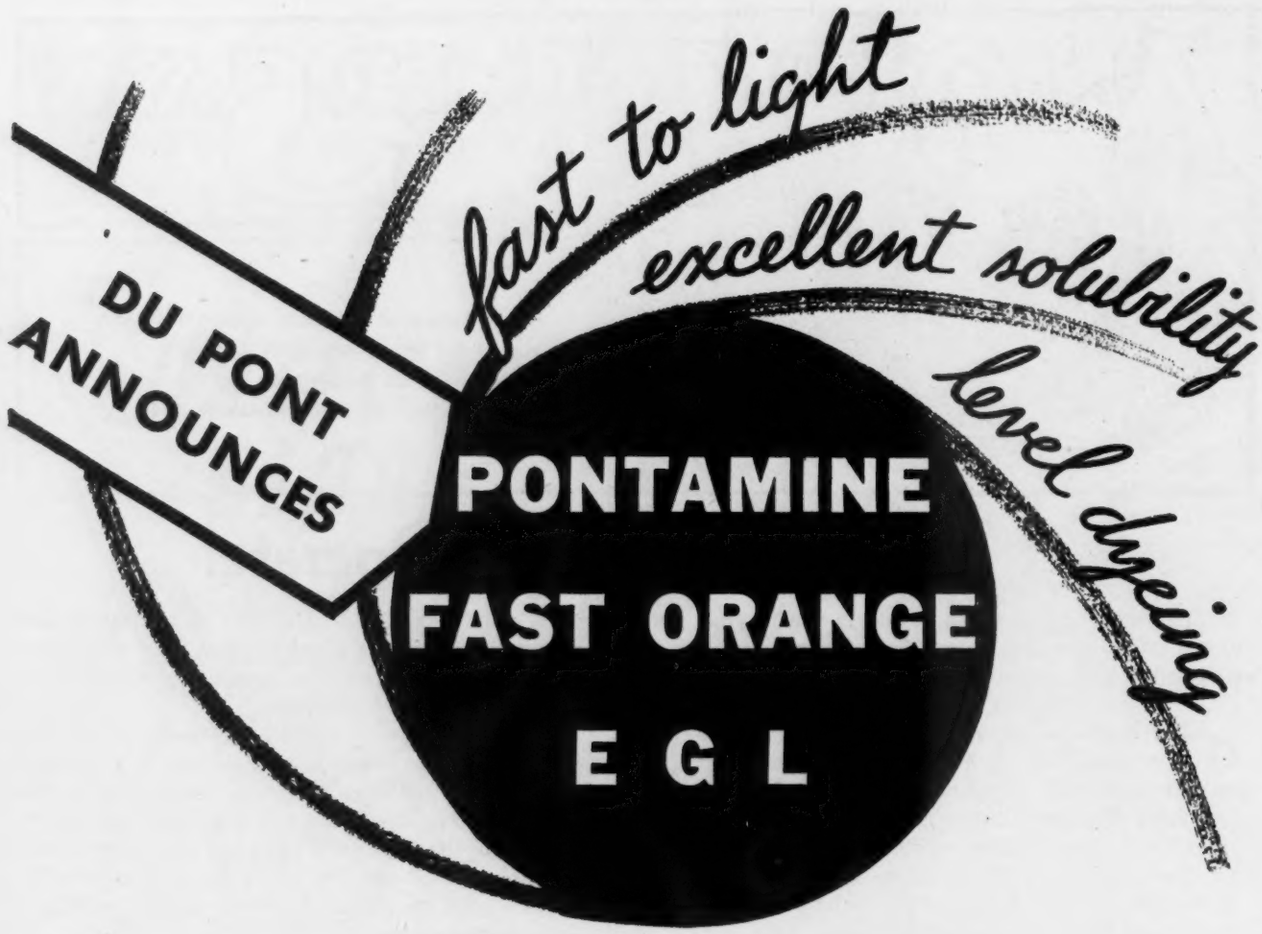
Only a few days ago, while going through the mill, one man stopped me to explain a certain thing which had been done, taking particular pains to stress the personal pronoun I.

The next day I happened to be with another man and he explained the whole thing to me, that *he did it,*

IMPORTANT ANNOUNCEMENT!
Old-Timer Makes Attractive Offer to Ambitious Readers.

IN an effort to be of more service to his readers, Old-Timer has secured a limited number of a very attractive and helpful souvenir which portrays the Old-Timer slogan. They will be presented free to those of his readers who will ask for them and who will agree to meet the requirements he has laid down in connection with them.

This offer applies to those readers who are eager to improve themselves, their work and their service to their employers. There is no "catch" in this. We know that the slogan will make you a better man, and put dollars in your pocket if you will conscientiously follow it. If you are interested, write to Old-Timer, care of COTTON, Grant Building, Atlanta, and ask for a souvenir of the Old-Timer Club.



A Level Dyeing ORANGE for Drapery and Upholstery Material

LIGHT fastness coupled with excellent solubility and level dyeing properties particularly adapt this bright direct orange for use in the dyeing of upholstery, drapery and similar materials. In shade it is between Pontamine Fast Orange EG and Pontamine Fast Orange ER, but it is superior in fastness to light to either of these dyestuffs.

Pontamine Fast Orange EGL has the desirable property of giving full shades when dyed from a practically cold bath. It possesses a superior resistance to the effects of alkali and chlorine.

Pontamine Fast Orange EGL may be dyed on cotton raw-stock, yarn or piece goods. On account of its extremely good fastness it may be applied not only for self shades but in combination with other direct colors (of the same characteristics) for the production of browns, tans and grays. When union material is dyed from a neutral bath the silk is practically unstained. Cellulose acetate silk effect threads are left white.

Ask the Du Pont Technical Service man about this product when he calls . . . write our nearest branch office for information. E. I. du Pont de Nemours & Co., Inc., Dyestuffs Dept., Wilmington, Delaware.

DU PONT DYESTUFFS
REG. U.S. PAT. OFF.

Du Pont FAST DYES

SALES OFFICES: Boston, Mass., Charlotte, N. C., Chicago, Ill., New York, N. Y., Philadelphia, Pa., Providence, R. I., and San Francisco, Calif. Represented in Canada by Canadian Industries Limited, Dyestuffs Division, Canada Cement Building, Montreal, Canada

and I happen to know that neither of them deserved the credit for the idea. That it really was an idea developed from several others and several subordinates of these two men deserved just as much credit as they did.

It was a dandy good thing all right, but just how that old selfish feeling did pop out! I say this selfish feeling is at the root of most of our lack of co-operation. Why a human being seems to be born with a natural desire to knock everything his fellow man does, I have never been able to understand.

To sit down and talk with the average overseer or superintendent, he will tell you exactly how men should co-operate, he will explain in detail the many advantages of co-operation; he will very likely tell you the biggest essential to success is co-operation; he will cite you many instances of wonderful accomplishments which are the result of co-operation.

All right, now after listening to his lecture—watch him! In a day or two you will see some little thing that will make you a little suspicious. You will probably say, "Oh, well, maybe that was just an oversight; maybe he did not fully understand the situation; probably he did not know just how much it meant to the other fellow."

(Gosh! JIM has gone fast to sleep and is not hearing a word OLD-TIMER is saying. Therefore I want you to realize that I am talking to *you*, the man who is reading this article. If you think you are not guilty, if you think this reasoning does not apply to you, I do not mean literally, but in substance—you are just mistaken, that's all. In fact I *know* that you *know* that you do not co-operate in the way you *should*.)

Now, if you wish to challenge that statement, OLD-TIMER will accept your challenge gladly.

It matters not whether you are a lawyer, doctor, preacher, overseer, superintendent, manager, president, salesman, or occupied in any vocation in which you work, by, for, under or over, other human beings (and I do not know of any occupation which does not) and if you will agree to answer all of OLD-TIMER'S questions *honestly* (get that word honestly) if I can't prove to you that you do not co-operate as you *know* you should—

Well, if my editor would allow me to make such a statement I would have no fear of losing many of my hard-earned dollars if I should wager to pay you $500.00 if I did not prove it to you.

Remember, brother, *you* are the man who is getting hurt by your lack of co-operation, the same as you do when you say things you do not mean, when you do things you regret, when you hurt a friend's feelings, and although you apologize you *know* there is still that memory, that little thing in that friend's heart that you did him a wrong, the same as *you* will always remember that you did him a wrong. To apologize is manly, it shows the gentleman that you are. The point I wish to bring out is that your conscience will remind you of it years and years afterward and you will never forget it.

Sure, I knew you would remember an instance in your life when you read this, in fact that is what I am writing it for. OLD-TIMER is making an honest effort to appeal to your conscience, to make you a bigger man, to make you happy, and when you are happy you will co-operate more fully with your brother. You will . . .

(JIM snored so hard it waked him up. He very likely has forgotten what we were talking about when he dropped off to sleep.)

What time is it, OLD-TIMER?

Not bed time yet, JIM, and as you have had a good nap, you can now afford to sit up for another hour or so and talk.

Yea, OLD-TIMER, *that's all you do: talk, talk, talk. Say, Edison should have known you,* OLD-TIMER, *then he never would have lost so much good sleep trying to invent a talking machine.*

Well, of all the nerve, you ungrateful old fossil you, after all I've done for you with my talk as you call it. You know darn well you would have been running that little old card room today if—

Wait a minute. Just keep your suspenders on, OLD-TIMER, *and give me another chew of that Battle Axe. Can't you tell when a fellow is kidding? What you got on your mind, any way?*

I was just thinking, JIM, about that time when that young superintendent took charge of ——— Mills where you were boss carder, and the argument you, he and the spinner got into about the twist in the speeder roving.

You remember the young super found out you were putting in more than standard twist in your speeder roving with low-grade cotton, and as he had been taught in textile school that when the roving had just enough twist in it to prevent breaking back it would draft better and run better and when he sent for the spinner and told you he was going to have you take out some twist to help lower the cost—you thoroughly agreed with the young super that he was right?

Sure, I remember all about that, OLD-TIMER. *What of it?*

Well, before you went to sleep, we were talking about co-operation, and I simply wanted to bring out this illustration to show you that it was selfishness which caused you to agree with the young superintendent instead of co-operating with your brother overseer and also co-operating with your firm, when you knew all the time that his spinning would not run as well if you took out the twist, but you did know that it would enable you to pile up the roving and make a show with the new super.

Oh, the devil, OLD-TIMER, *you get down to too fine a point in your arguments.*

O. K., JIM. Suppose I tell about the conversation you had with the president about the young super when you had a pretty good idea he was going to let the young super go and you had a good chance to get the job, which you finally did get—

What in heck are you driving at, OLD-TIMER? *Any way, haven't I run the job better than any man they ever had on it? Didn't the president tell you last year that I had taken a load off of his shoulders and that he had quit worrying about the mill? What the—*

Never mind, JIM, I was talking about co-operation. I know you are running your job all right, and if you are going to get all het up about it I will just use an illustration about another case and you can listen.

(Continued on page 465)

Examine Your Time-Honored Practices

EVERY business enterprise that exists long enough acquires its various traditions. Whether or not they are worthy depends upon the management.

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

Some Questions About Slasher Creels.

How about weighting the beams? How do you try to get the same tension on all beams in a set? Your ideas will be welcome.

EDITOR COTTON:

I would like to see some discussion in "HOW OTHER MEN MANAGE" about slasher creels, along the following lines:

(1) How should the friction ropes on the beams in slasher stands be put in? How much weight is required on beams with 18,000 yards of 21s yarn?

(2) Should the stands on the back of the slasher be screwed up on the nuts to make friction on the beam to keep kinks out of the yarn?

(3) Why does the back beam have more yarn on it when the set is out than the rest of them? Is it stretched?

(4) What is the best way of getting the same tension on all of the beams in a set?

I have seen perfectly good beams put on slashers with perfect nuts on them, and by the time the set was run out, the nuts were partly cut away by the stands being screwed up too tight to cause friction. I would be very glad to have some of your readers answer my questions and bring out any other good points.

CONTRIBUTOR NO. 4797.

Does Not Agree With Wash.

This contributor disagrees with some of "Wash's" views concerning rolls, hooks and saddles on intermediates. Who is right?

EDITOR COTTON:

I have noted what "WASH" had to say in your December issue in answer to "CONTRIBUTOR NO. 4726" as to the causes of hard ends on intermediates.

With all due respect to "WASH," on account of his previous instructive writings, this one on hard ends, to my mind, should be classified as "just so much talk." He seems to have lacked inspiration when he wrote this one, as everything about it seems to be "wrong-end-to."

First, he says, "having hard ends on intermediate frames is nothing new. This is due to the fact that these machines must draw the heaviest-twisted strand in the cotton mill, and this is why the shortest possible draft should be maintained on these machines. It is well to remember that the longer the draft the greater will be the work on the top rolls which increases the friction."

It is true that the intermediate frame is the first machine which drafts a twisted strand and therefore the heaviest in the mill, but why attribute hard ends to that fact? And should it be concluded from his statement that roving frames, fine frames and spinning frames, which do not draw as heavy a twisted strand as does the intermediate, are immune from the spasmodic malady of hard ends?

His recommendation of keeping the draft on the intermediate as short as possible to eliminate hard ends is one that cannot be well understood, because the higher the draft the easier it is for the rolls to accomplish the draft without slipping. Although this last statement contradicts "WASH'S," a little logical thinking soon discloses the facts. With a short draft of, say 2.5, the rollers would separate twice as many fibers per revolution as they would with a draft of 5; therefore, the front roll would have to pull twice as hard to overcome the friction of the cotton. To prove this one has but to watch the difference of action between the middle and front rolls, where the draft is comparatively high, and between the middle and back roll where the draft is short. For example, a break draft of 1.10 would certainly be short enough, according to "WASH'S" ideas, to make it easy for the middle roll to pull the fibers apart. The fact is, though, that such a low break draft does not draft at all. In fact, the conventional break draft of 1.20 seldom actually breaks the roving apart, and, too, the roll setting is greater in back than in front, which usually helps the drafting. Increase this break draft to 1. 75 or 2.00 and you will find that the roving is pulled apart.

There are many other ways of demonstrating that the best way to stop the top roll from turning is to choke it with work by feeding it more cotton, but I think the foregoing is sufficient to bring out the point.

"WASH" says he would move the front ball-bearing top roll to the back line. My guess is that he has no use for ball-bearing or shell rolls because of the long arbor inside of them, which he believes is causing a lot of friction on account of its large bearing area. We shall talk about this later and see if he is justified in his surmise.

Then, he says he would set the front and middle top rolls ⅛-inch forward of the center line of the steel rolls. This, he says, is to give it more gripping power

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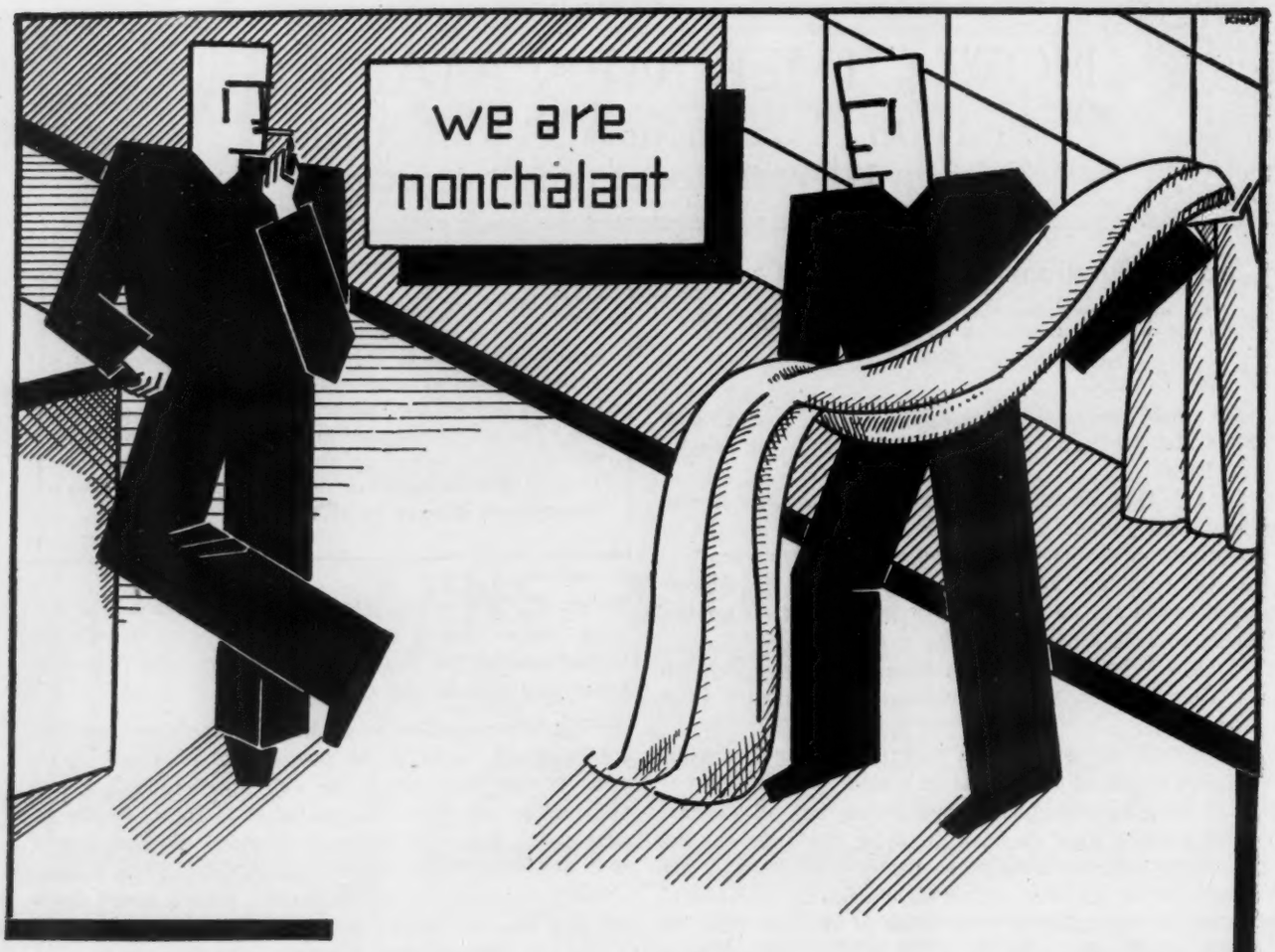
WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.



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on the stock. What he really means, however, is that with such a setting the top rolls will bear down harder on the steel roll without increasing the weight and friction on the hook or saddle. This scheme would be good provided it did not introduce additional friction on the roll at a point other than the saddle. Since there is always a cause for every effect, let us see what they are in this case.

The reason why the pressure from the top roll is increased when set forward is because it sets up a triangle of forces, as shown by Fig. 1. Assuming that the steel roll is 1¼-inch in diameter, and that the

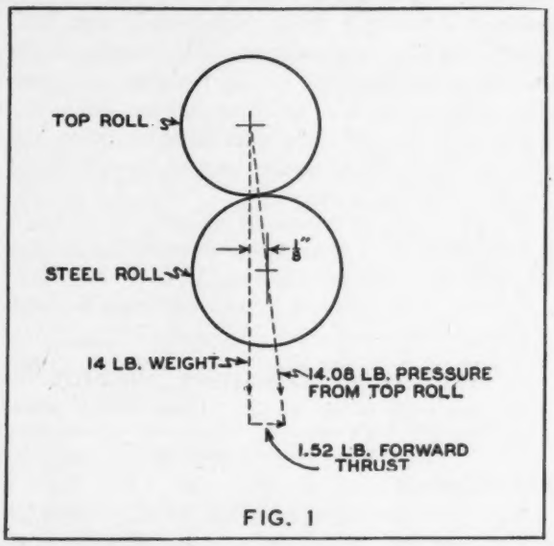

FIG. 1

weight is 14 pounds, it can be seen from the sketch that setting the top roll forward ⅛-inch increases the pressure .08 pound, which is very little indeed. Now the top roll being set ⅛-inch off will have a tendency to fall forward, but will be prevented from doing so by the cap nebs. This forward thrust is represented by the bottom line of the dotted triangle and amounts to 1.52 pounds. So you see we have added .08 pound pressure on the leather roll by applying 1.52 pounds friction on the cap nebs. It would be far better to leave the rolls plumb and add weight to the hook if more pressure on the top roll is desired.

One way to reduce the friction from the saddle, or hook, is to increase the ratio of roll diameter to that of the roll neck where the saddle rubs. This can be done very effectively by means of ball or roller bearings, and it is for this reason that ball-bearing top rolls don't belong on the back line; in fact, it is somewhat beneficial if the back top roll runs a little hard because its function is exactly opposite to that of the front. The front roll has to pull the fibers and the back roll has to hold them back.

I cannot agree with "WASH" when he says that "the solid roll has twice as much frictional power as the split shell roll. There is that advantage with the solid roll, however, of one side helping the other with its reserve power, provided both sides are of exactly the same diameter, which is quite often not the case. The shell roll retains lubricants so much better than the saddle or hook that very often it offers less resistance to turning than the solid roll.

"WASH" says that the contributor having trouble with hard ends on his intermediates should use a wire hook or file the stirrup down. This is evidently to reduce the friction by reducing the bearing area on the roll neck. I have heard other men recommend the same thing with the off-hand explanation that they get "better results." So many little tricks have been exxplained by the expression that nine times out of ten they are found to be worthless. Let us look into the question of narrow hooks and saddles, by going over the laws of friction, and see how much there is in it:

Friction Laws. (1) Friction is defined by Rankine as, "that force which acts between two bodies at their surface of contact so as to resist their sliding on each other, and which depends upon the force with which the bodies are pressed together." (Note that pressure is the important thing regarding friction and nothing is said about area.)

(2) "The ratio of the force required to slide a body along a horizontal plane surface to the weight of the body is called the *coefficient of friction.*" If 50 pounds is required to push a 100-pound packing case along the floor, the coefficient of friction would be .5. The coefficient of friction varies with the kind or nature of material.

(3) From Rennie's experiments "with wood, metal, and stones, within the limit of abrasion, friction varies only with the pressure, and is independent of the extent of surface, time of contact, and velocity." Rennie's law is now somewhat modified and does not apply for extremely high speeds or very heavy pressures. Our case of top rolls, however, is well within these limits.

It appears to me that these friction laws should make it clear that regardless of whether the hook or saddle is wide or narrow, the friction is the same. For example, if the 100-pound packing case previously referred to has a coefficient of friction of .5, it will require 50 pounds to push it along the floor, whether the area of the box is one square foot or two square feet. The reason for this is, although there is twice as much area in one case as the other, the pressure per square foot is only half as much.

CONTRIBUTOR No. 4954.

Wants Information on Pre-Shrinking.

Practical suggestions that will be useful in this mill on chambrays will be especially welcome.

EDITOR COTTON:

We are interested in getting all of the information possible that will be of assistance to us in pre-shrinking cotton goods. We are especially interested in 36-inch 3.00-yard chambray for work shirts. Any information you can furnish or obtain for us will be appreciated. We would like to find out if there are any chemicals that can be used to facilitate the shrinkage more than simply putting the goods through water. We are especially interested in any information that can be obtained as to the methods that are practical to use in the drying of these goods in an economical way.

CONTRIBUTOR No. 4914.

What Causes Top Rolls to Flute?

This contributor wants your experiences as to top rolls fluting. Help him out.

EDITOR COTTON:

I would like to find out all of the probable causes for top leather rolls fluting. This is often claimed to be due to the diameter of the top roll being the same as that of the bottom roll. However, I would like to know what reasons for fluting can be given where the top roll diameters have been changed by a 1/16-inch by different weights of cloths and different types of leather. I would like for some spinners to bring out the question of flutes of the steel roll relative to the fluting being unequal.

I would like to know all possible causes for fluting, along with all the possible remedies. Roller coverers often get blamed for this trouble when perhaps it is beyond their control.

CONTRIBUTOR No. 4960.

Says Spindle Puts in Twist on Ring Frame.

An interesting test which some reader should make for his own information and then let us know the result.

EDITOR COTTON:

I would like to suggest the following experiment for anyone who thinks the traveler on a ring spinning frame inserts the twist. The experiment is to be conducted on a twister, but the results would be just the same as if performed on a spinning frame, as the principle is the same.

The twister should be set to give 15 to 16 turns per inch. A tack should then be driven in the upper end of a well fitting bobbin and it placed on a spindle. A doubled package of, say 30s/3, or three single bobbins of 30s if preferred, should be put on the creel and the ends led through the water trough, guide, and rolls, as usual, then through a ring, a finger ring for instance, on through the thread board guide and fastened with a tack to the spindle bobbin. The ends should not be put through a traveler. If the frame should now be started up, the thread would not wind on because that is the function the traveler performs. We have to take care of this slack somehow, that's why we put it through the finger ring. By raising the ring we can lift the slack.

A step ladder should be placed in the alley so it will be possible to climb as the slack is raised by the finger ring. An assistant should start up the frame, and as the yarn is delivered the person on the ladder should keep a steady tension on it with the finger ring by slowly ascending the ladder.

When a sufficient amount of yarn has been twisted it should be held at the delivery rolls, cut and pulled taut and slack alternately to distribute the twist. Measure it and make allowance for the distance between the rolls and tack at the start, and then find out how many turns there are. If twisted in the regular way we know the amount of twist we would have. A comparison of the twist obtained by inserting twist by the method outlined with that when the regular method is used will prove interesting.

Someone put up the argument that if the traveler were driven it would produce twist. To those who feel that way I will address the following remarks: Just pull three singles very slowly through a traveler on a ring while someone pushes the traveler around the ring. The amount of twist inserted one way above the ring counteracts the twist inserted in the opposite direction beneath the ring and when the yarn is released from the traveler and pulled taut all the twist leaves it.

The other argument that if the traveler be held stationary only winding on will take place is unsound because when this is done the yarn breaks down immediately. It simply can't be done at reasonable speeds.

The traveler is a rotating guide which winds on the thread and the pull of the traveler helps set the twist. We could not produce twisted yarn in any quantity without the traveler or some other agency for winding on because the twisted thread would fly around and break down.

We produced all the twist we wanted without the traveler, now let's hear from someone as to how to produce twist without the spindle.

CONTRIBUTOR No. 4956.

"The Count" Discusses "Words."

The first reply to "J. W. C.'s" interesting questions. Can you add some terms for discussion, and comment on those already mentioned?

EDITOR COTTON:

The communication from "J. W. C. (TENN.)," on page 357 of your February number, is quite interesting, and relates to a subject which I find, as he does, sadly neglected. That is, he submitted a number of terms used in the textile industry—particularly names applied to various textile fabrics, etc.—and asked the rest of us to join with him in an effort to clarify the meaning of some of these terms.

As an introductory remark to this brief response to his call, permit me to offer that the name given to a fabric is more often determined by the finish and the application made of it than by the particulars of its construction. Absolutely common fabrics are made to appear highly mysterious and desirable simply by giving them a slightly different finish from the regular run and then designating them by some high-sounding names which are not remotely descriptive. It is common practice, you know, to sell grey goods to several different converters who give them treatments which make their respective finished cloths as dissimilar as a barbed-wire fence and outing pajymas (the spelling is my own).

For example, we buy a heavy grade of sheeting, 2.50-yard goods, and convert it to beautiful "suiting," as it is called, for school dresses, uniforms, etc. The cloth from which printed cretonnes are made is often piece-dyed and used for smocks and the like, also under the name of suitings.

The most interesting case which came to my personal attention was in the East a few years ago. We had several hundred looms of a standard construction of rayon voiles made from 75 denier with 28 turns twist. A big converter placed an order for 100,000

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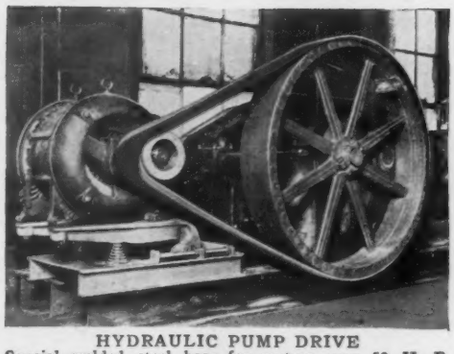
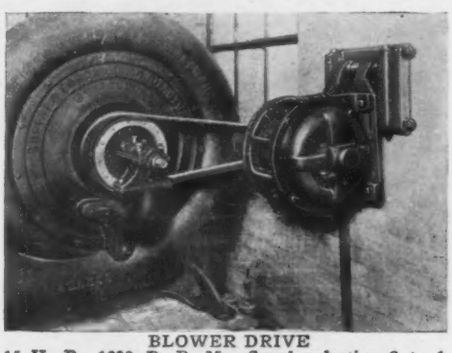
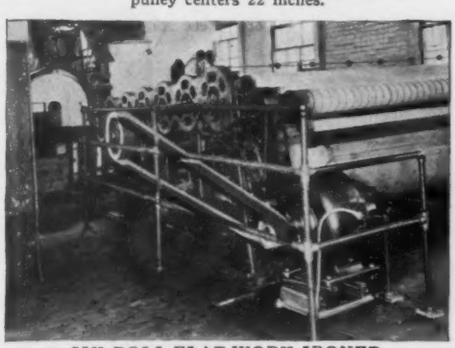


HYDRAULIC PUMP DRIVE
Special welded steel base for motors over 50 H. P. Motor shown 60 H. P., 1200 R. P. M. Speed reduction 6 to 1, pulley centers 50 inches.

COMPRESSOR DRIVE
10 H. P., 1800 R. P. M. Motor speed reduction 5 to 1, pulley centers 25 inches.



BLOWER DRIVE
15 H. P., 1200 R. P. M. Speed reduction 2 to 1, pulley centers 22 inches.



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yards and specified 32 turns twist. On his sales note I saw the fabric described as a chiffon. Later, one of our older customers had the twist in his cloth changed to 32 turns and continued to call it a voile. The fabric was one and the same thing in the griege.

In connection with the word *chiffon*, it is interesting to know that it was applied long ago to ribbons and sashes, quite a while before sheer stockings and summer frocks adopted the term.

Cotton *voiles* and *organdies* are much the same under the skin. But the finisher certainly changes the skin, the *voile* being soft and adaptable while the *organdy* is a trim, precise sort of young thing whose primness is not to be trifled with.

I will dismiss his remarks concerning *"roving"* and *"ropin'"* with an humble salutation in his direction for his daring in spelling *"ropin'"*. I have heard it all my life, but no one I knew had the temerity to commit its spelling to type.

You will smile when I tell you that only recently did I know that there was such a word as "lag-screw." I had always thought it was "leg" and that common practice had corrupted the pronunciation to "lag" or "laig." I still think I am right about the word "shade." Weavers are continually talking about getting the proper *"shade"* and the settings necessary for it. I have always maintained that it is *"shed"* with a twist in the pronunciation. However, some weavers use both terms and don't seem to mean exactly the same thing by them. This is another bone I would like to add to "J. W. C.'s" for the doggy boys to scrap over.

Brother Einstein's relativity got here just in time for the discussion of *twills*, *drills*, and *jeans*. It will be mighty hard to set bounds and say where *drills* stop and *jeans* begin. While I expect many men to differ, to me, *twills* is the name of the whole class; it is generic. *Drill* was originally a very tight and firm cloth with much higher sley than pickage, and of almost any counts of yarn. *Jeans* used to be made with cotton warp and woolen filling. Then it became all-cotton.

Now we call the fabrics with coarse yarns *drills*, and the ones with fine yarns *jeans*. Who can say where the line is drawn between the fine and coarse numbers or what is high sley and what is low sley? Please don't hand me a piece of cloth and ask me whether it be *drills* or *jeans*—my answer would be, "Which are you in the market for?" Still, I believe that if a boy up in the Dark Corner got some *drill* and had his Ma make him a pair of breeches, the *drill* would become *jeans*.

Coming to *Bedford cords* and *piques*, we are on a little more familiar ground; but, here, too, the retail merchant may call a fabric whatever he wants to. To me, a *Bedford cord* is a fabric with very firm, definite cords on the face and with a smooth, soft back. These cords run warpwise merely because it is more expedient to weave the fabric in that fashion. On a dobby box loom you could weave the ribs fillingwise, but there would certainly be no point in it.

Now as to *piques*. They are usually made with very fine yarns on the face and have the face extremely tight and closely woven. The back of the cloth is made of soft, coarse yarns and is very loose. These coarse yarns are for weight and cushioning and are called "stuffers." The most beautiful *piques* have small geometric figures woven on the face and give no effect of cords at all. However, many are woven with plain filling ribs. These might easily be confused with *Bedford cords* on the face, but the loose, coarse yarns on the back will identify the true *pique*. Please remember that I am merely stating my humble opinion and wish to be guilty of no laying-down-the-law gesture.

Incidentally, just what does a cloth have to be to come under the head of *broadcloth?* Frankly, I don't know. I call it *broadcloth* when I am not sure that it is something else.

"J. W. C." and I agree on *slub filling* (*warp*, too), but I have never heard it called "ocean wave." It is spun from two ends of roving. One end runs all of the time while the other end is fed in intermittently by means of a gear with teeth cut out of it or with other attachments. This makes the thick places. Of course, two colors may be used if desired. The fact that the twist runs to the small diameters is what the whole principle of mule spinning is based on—but that doesn't mean that slug yarn is made on a mule.

Ratine yarn is made on a twister with a double set of rolls, one set above the other. The two ends are delivered at different speeds because the two sets of rolls ar driven at different speeds. The end which is being delivered faster kinks and loops, and twists around the other end which is called the core. There is no drafting here.

Nub yarn is very much like *ratine* except that each nub is separate, and the yarn making them is broken between each number instead of being continuous as in the case of *ratines*.

The word *repp* is supposed to be a corruption of *rib*. The cloth is very much like a *poplin* except that *poplins* are usually made with very fine warp and are given a sparkling, lustrous finish. Both have high sley and coarse filling, but the *repp* is usually soft to the hand and is subdued in luster. The *repp* has a distinct but small filling rib. *Bengalines* are very much like *repps* except that they have two or more picks to the shed and are of greater weight.

Now we come to the *confined fabric*. I wonder if "J. W. C." asked about this with his tongue in his cheek? Well, I'll relieve his mind on one score at least: it is *not* a cloth used in a lying-in hospital! Why not ask the following questions in your next contest?

What color is a confined fabric?

How many looms per weaver should you run?

Which is preferable, Jacquard heads or one-process picking?

Do you use thin-boiling starch or the long-draft system?

Do the checks run diagonally, or are the selvages alone napped?

When you ask these questions, I'll rise up on the front row and proclaim: "A confined fabric is a cloth of any description which is confined to one customer alone. He agrees to buy a minimum yardage with the understanding that the mill will not sell this particular cloth to anyone else."

THE COUNT.

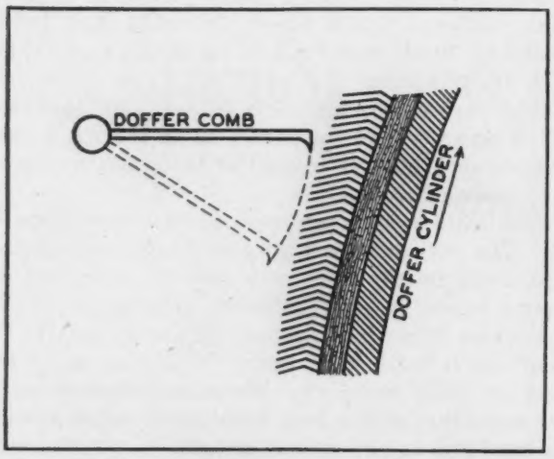
Opinions on Doffer Comb Speed.

Some say comb speed should be reduced with lower doffer speeds. Some say not. What say you?

EDITOR COTTON:

Referring to the inquiry of "CONTRIBUTOR No. 4943," who states that "in former years it was quite customary to have the doffers on cards running about 14 r.p.m. The doffer comb, or comb box, was always run fast enough to comb the web from the doffer at this high speed. * * * Now it is a common thing to see doffer speeds down to 6 and sometimes 5 r.p.m. Still the comb boxes are going at the same speed as when we were running the doffer at 14 r.p.m. In taking care of the comb boxes there has always been more or less trouble with them throwing oil. On our particular cards the comb pulleys go about 1,600 r.p.m. at 175 r.p.m. cylinder speed. Why would it not be a good idea to slow them down to 900 or 1,000 r.p.m.? I feel as though there would be less wear and tear on the wearing parts of the box, and it would also be a big assistance to boxes that are throwing oil."

Herewith is a sketch illustrating the stroke of the comb as it acts to remove the web from the doffer. The comb travels downward one inch each stroke. It makes one stroke for each revolution of the comb box pulley. The doffer cylinder travels upward as the



comb strikes. It would seem possible for the comb pulley to be of such size that the comb would make one one-inch stroke downward while a point on the surface of the doffer travels one inch upward, and still keep the web cleaned away from the doffer. We know from experience, however, that this is not the case.

To illustrate, take a doffer speed of 13 r.p.m., and a comb pulley speed of 1,842 r.p.m. These speeds are in use in a mill where a 58-grain card sliver is being made from a 14½-ounce lap. The doffer diameter of 26¾ inches × 3.1416 × 13 r.p.m. gives 1092.49 inches per minute surface speed of the doffer. Dividing this 1092.49 by the 1,842 r.p.m. of the comb pulley, we find by the result that the doffer travels 0.593 of one inch for each stroke of the comb. To carry the idea further we changed pulleys and slowed the comb speed down to 1,540 r.p.m. At this speed the doffer travels 0.709 of one inch for each stroke of the comb. But this last speed of the comb is not sufficient to properly clear the web from the doffer. The comb would work satisfactorily for short intervals, then the web would get up under the comb and go around the doffer.

If we look at the sketch we note that the comb is nearest the doffer at a point somewhat below the upper limit of the stroke. This is because the center of the comb shaft is set quite a distance above the center of the doffer shaft. The comb in traveling downward on its stroke stays quite near the cylinder for more than three-fifths of its travel of one inch. It pulls away from the cylinder quite rapidly during the last portion of the stroke. It actually gets about ⅛-inch away from the cylinder at the bottom of the stroke when set at 17/1000-inch at the nearest point.

It would seem then that the action of the comb is not effective in removing the web from the doffer during about the last 2/5 of the stroke, or after the comb has drawn away from the doffer in its downward stroke. The speed of the comb should be kept in a definite relation to the surface speed of the doffer. It seems that the doffer should travel about 0.60 of an inch for each stroke of the comb where a 58-grain sliver is used with a doffer speed of 13 r.p.m.

Turning now to a card room where the card speed is 6 r.p.m. for the doffer with the card making 45-grain sliver from a 12¾-ounce lap. In this card room a comb pulley speed of 1,390 r.p.m. is used regularly with a doffer speed of 6 r.p.m. By calculation we find that the surface speed of this doffer is 504.23 inches per minute. Dividing this 504.23 by the 1,390 r.p.m. of the comb pulley, we find that the comb is making one stroke for each 0.363 inch travelled by a point on the surface of the doffer. This comb pulley was slowed down to 1,000 r.p.m., and the web was still being removed from the doffer at this speed, but the web was not satisfactory in appearance. It appeared to roll under the action of the comb and not come off in a straight, even line. At this speed of 1,000 r.p.m., for the comb pulley, the point on the surface of the doffer was traveling 0.504 of one inch for each stroke of the comb.

The speed of the comb pulley was then changed to 1,200 r.p.m., with the doffer speed remaining at 6 r.p.m. At this speed the comb was making one stroke for each 0.420 of one inch travelled by the doffer. It appeared that this comb pulley speed was satisfactory for a 45-grain card sliver and a doffer speed of 6 r.p.m.

It will be noticed that the comb can satisfactorily remove a larger portion of web at each stroke when the heavy sliver is being run. This is due, in part at least, to the fact that the heavier web exerts more pull by its own weight, and so helps pull away from the doffer.

If the card clothing is dull and slick the web will be easier to remove than when it is newly sharpened. The speeds given should be satisfactory even with newly-ground wire.

It sometimes happens that the web follows the doffer instead of being removed by the comb. This may be when the comb is striking at a speed sufficiently high to remove the web, showing that the trouble is not connected with the speed of the striking comb. If the web is following the doffer the position of the stroke of the comb should be lowered. This is

accomplished by loosening the set-screws on the shaft and altering the position of the eccentric which imparts motion to the comb. By looking at the sketch we will note that the position of the comb is such that when it is at the upper limit of its stroke it is still very near the doffer. If we try to run the comb with a setting such that it is too far away from the doffer at the top of its stroke, the web will have a tendency to follow the doffer. By lowering the position of the comb we cause the upper limit of the stroke to be nearer the center of and closer to the doffer. This lowering of the position will prevent the web from following the doffer.

Again the web will sometimes sag between the doffer and the trumpet. This is likely to trouble the carder in a room that is not supplied with a sufficient quantity of humidifying equipment. It is not likely to trouble the carder whose room is equipped so that the relative humidity can be kept constant at all times. When the web sags, the position of the stroke of the doffer comb should be raised. By so doing, the top of the stroke is carried further away from the doffer and the tendency of the web to follow the doffer will take up the slack and stop the sagging.

The setting of the comb to the doffer varies, in different mills, from 5 to 25. It is the belief of many good carders that the comb should be set at about twelve. When once a satisfactory setting is found, for the weight sliver being run, the best thing is to leave this setting and correct troubles that arise by changes other than on this setting. In other words, it is not thought that enough can be gained by making this setting closer or wider to justify the change.

As to the length of the stroke of the doffer comb. This stroke is of one inch length. Raising the top of the stroke higher, or making it lower, does not change the length of the stroke. This is true, at least, for that portion of the arc in which the comb is ordinarily used. To change the length of the stroke then means that we must purchase new parts for the comb box. While it may be that conditions could arise where this would be justified, a wide range of card sliver weights can be handled satisfactorily with the stroke of one inch. The writer has never known of a case where it was necessary to change the comb box parts in order to handle the work when changing from one sliver weight to another.

J. W. C. (TENN.)

EDITOR COTTON:

I note the suggestion from "CONTRIBUTOR NO. 4943" for a discussion on the speed of doffer combs on cards. He seems to advocate the slowing down of the speed of the comb, when reducing the speed of the doffer, in order to save wear on the doffer comb box and also to prevent the box from throwing oil.

Your correspondent states that in former years it was quite customary to have doffers on cards running about 14 r.p.m., with the comb box running fast enough to comb the web off of the doffer at this speed, or sometimes running faster than was necessary to comb the web off. He also states that it is now a common thing to see doffers running at 5 to 6 r.p.m., while the comb boxes are running at the same speed as they were when the doffer was running at 14 r.p.m. I will agree with this statement of his, but he asks why the doffer combs should not be slowed down in proportion to the speed of the doffer.

It is my contention that the doffer should be run as slow as the mill production demands will allow, but in slowing down the doffer, I do not think the doffer combs should be slowed down, as the only tendency that a fast-moving comb has is to knock more shale from the doffer down into the pan, and this is to the distinct advantage of the mill. I do not think that the wear on the box at this higher speed will be enough to offset the advantage obtained by the knocking of the trash from the doffer.

When you slow the doffer down and also slow the comb down in proportion, there is some danger of cutting this comb speed too low and thus causing injury to the stock; this comes about in the way of uneven sliver, since if the comb does not travel at a sufficient speed, the web has a tendency to crawl on the doffer and the comb rakes it back down on its downward stroke.

Your correspondent also mentions slowing down the doffer comb to stop the comb box from throwing oil. I will say here that a comb box kept in good condition and tight, will not throw oil at any speed.

S. G. (GA.)

EDITOR COTTON:

A very interesting subject was brought up in one of your recent issues by "CONTRIBUTOR NO. 4943." He called attention to the fact that whereas a great many mills have within recent years reduced the speed of the doffer on the cards, very few of them have made any corresponding change in the speed of the doffer comb. He explained that too high a speed on the comb of course results in undue wear as well as excessive throwing of oil from the comb box, and asked for your readers to discuss this proposition. I shall be glad to give you our experience and views on it.

I might say that at our mill, we run the comb boxes at the same high rate of speed regardless of the speed of the doffer, as we have one class of stock being run through the cards with a doffer speed of 6½ r.p.m., and another with a doffer speed of 12 r.p.m. In both cases, the comb pulleys are running at a speed of about 1,650 r.p.m.

In the case of the 6½ r.p.m. doffer speed, we are using a 14-ounce lap to make a 52-grain card sliver. The card cylinder speeds average 165 r.p.m.; 1 1/16-inch Strict Low Middling cotton being used for making 30s and 40s yarn into broadcloths, etc.

Where we run the doffer speed of 12 r.p.m., a 13-ounce lap is used to make 56-grain card sliver. The cylinder speeds average 160 r.p.m.; ¾-inch to ⅞-inch Middling and lower cotton is being spun into yarn varying from 6s to 27s, which are used to make osnaburgs, drills, coarse sheetings, etc.

I think it would be better to run the comb shafts at lower speeds if possible; in fact, just fast enough to allow the combs to collect the cotton from the doffers. As pointed out by the contributor, the lower speed would cause less wear and tear on the parts of the comb box, and would also lessen the amount of oil

thrown from the boxes.

Where it is found that a speed of around 1,600 r.p.m., on the comb pulley is necessary to allow the comb to properly take the cotton from the doffer, it might be possible to obtain the same result by using a lower speed with a longer stroke of the comb. To obtain this longer stroke of the comb, it would be necessary to change some parts of the eccentric mechanism in the comb box.

If a mill has difficulty in preventing their comb boxes from throwing oil, they might require their oilers to put oil in the boxes with a gauge. A small stick with a notch showing the height to which the boxes should be filled would serve the purpose.

CONTRIBUTOR NO. 4951.

Preventing Warps Sticking to Slasher Cylinders.

These answers bring out some good points. If you have any other suggestions, be sure to send them in.

EDITOR COTTON:

Referring to the question of "CONTRIBUTOR NO. 4944" who asks, "What causes warps to stick to slasher cylinders? We are using 22s warp yarn, using as a size mixture, pure rendered beef tallow, corn starch and gum."

The inquiry does not give details as to the kind of gum compound, fluidity of the corn starch, length of time cooked, pounds of each ingredient put in the mix, method of handling the size, percentage of size it is desired to add to the warp yarn, number of ends in the sheet of yarn, etc., etc. I will attempt to answer the inquiry in a general discussion of the subject and hope that "CONTRIBUTOR NO. 4944" can fit the answer to his specific problem.

Let's start back at the cooking kettle. If the size is not cooked for a sufficient length of time the warp will stick to the cylinders. Corn starch as it is delivered to the mill is made up of many little sacks, or starch granules, with an outer layer of cellulose. When put in water and heated, these granules swell and swell and finally burst through the outer cellulose sack. The granulose filling comprises about 95 per cent of the granule, the remaining five per cent being the cellulose outer sack. The bursting of these sacks takes place when the temperature of the mass has risen to about 167 degrees, Fahrenheit. As the size mix is heated further and boils, the granulose and cellulose portions are gradually turned to soluble starch and dextrine. The cellulose sacks resist the action of the heat much longer than the granulose inner portion before being turned to soluble starch and dextrine. The boiling of the size mix should be continued for a sufficient length of time to break down these cellulose sacks and put them in a soluble state before the size is allowed to go to the slasher. If the size is put on the warp before the cooking is properly completed, the squeeze rolls cannot squeeze the size into the yarn, and the excess of size off the sheet of yarn. The result would be that the warp will have a tendency to stick to the cylinders. If the size mix is boiled for 1¼ hours, this trouble should take care of itself.

If we try to use too small a portion of softener in the size mix, the warp will stick to the cylinders. Here a great deal will depend on the kind of gum compound and softener used, as well as the kind of starch. In general, though, about one pound of softener (tallow) and two pounds of gum compound, to 16 or 20 pounds of corn starch, should fit the case where 22s warp yarn is used.

Allowing the cooked size to go onto the warp when the size is too cold will cause the warp to stick to the cylinders. After the cooked size has been drained from the cooking kettle into the storage kettle, from which the size is circulated to the slashers, the temperature of the size being circulated should be kept above 180 degrees F. If the temperature in the storage kettles is kept much higher than this the size will boil and will gradually get thinner because of this boiling. The temperature in the storage kettles should be kept just below the boiling point so the size will not be thinned down. The storage kettles should be heated by means of closed coils. Where open coils are used the steam will condense and cause dilution of the size mix. The temperature of the size at the slasher should be kept at about 208 degrees F. or so that there is a slow, steady boiling in all parts of the box. If the temperature in the size box gets much hotter than this the size will boil violently and cause undue dilution, as well as do damage to the warp by bubbling up and throwing daubs of size on the warp after it has passed the front squeeze roller. Size drawn from the storage system into the size box should be taken in a small, steady stream. It should not be taken into the size box by opening a valve occasionally and half filling the size box at one draw. This colder size coming from the storage system is readily heated up to the temperature of the size already in the size box if the drawing is done slowly and at a constant rate. If the drawing is in large quantities then the cooler size from the storage system does not have time to be heated to the boiling stage before it gets on the sheet of yarn, and the result will be that the warp will stick to the cylinders.

Trying to add too big a percentage of size will cause the warp to stick to the cylinders. If we try to put ten per cent size on a sheet of 22s warp yarn it will not give trouble. If we try to put 20 per cent on that same sheet of yarn we will likely find the yarn sticking to the cylinders.

Running the sheet of yarn too fast will cause it to stick to the cylinders. In this case the yarn does not have time to dry properly and it will stick. The remedy here, of course, is to slow down and get fewer but better warps. If we do not dry the warps enough to prevent them from sticking to the cylinders we are very likely to have mildewed warps in the weave room. On the other hand, it is not good policy to dry the warps until practically all of the moisture is driven out of the yarn. While an over-dried warp will regain its moisture in the weave room, this will not overcome the damage that has been done in over-drying. The general tendency is rather to over-dry the warps than to allow them to run too moist. We try to stick around the middle ground and have about

eight per cent of moisture left in the yarn when the beam is doffed.

Squeeze rolls that are not properly blanketed will cause the warps to stick. The blanket will sometimes get so hard and slick that there is not the proper squeezing out of the excess size at the squeeze rollers. This also happens when the blanket has been trimmed so often that there is not enough of it left to give a good cushioning effect. Sometimes when the blanket has been allowed to get so small that it does not reach around the roller enough times to make a cushion, it will be noticed that the yarn will stick to the cylinder in a very small area, probably only ½-inch of width sticking. Upon examining the portion of the blanket where this strip of yarn passes through we will find that a low place in the roller has prevented the proper squeezing effect and this causes the yarn to stick. This is more likely to show up where potato starch and fine numbers are being slashed than in the case of corn starch and coarse numbers.

Insufficient weight on the squeeze rolls will cause the warp to stick to the cylinders. If the yarn is sticking it will often be found that a little more weight on the squeeze rollers will stop the trouble. In this case the trouble is sometimes only on one side of the cylinders. The remedy is, of course, to equalize the weights and have both sides of the squeeze roll acting under the same pressure.

J. W. C. (TENN.)

EDITOR COTTON:

It is more or less difficult to answer definitely the inquiry of your contributor who said he was having trouble with warps sticking to slasher cylinders when sizing 22s warp. However, a few general observations in connection with the subject may be of interest.

Usually the most likely cause of this trouble is from the size not being properly cooked; or, the size may not be kept up to a high enough temperature in the size box in the slasher. The temperature of the size should not be less than 190 degrees F.

A pint of turpentine added to the size mix after it has finished cooking, stirring or mixing well before the size is turned into the size box, will usually clean off the cylinders nicely and stop the sticking.

We might suggest also putting an iron lease rod in the yarn between the size box and the cylinder. Drive this rod from side shaft or from the end of the squeeze roller by means of a belt or band, so that it will turn very slowly—just enough motion to prevent size accumulating on the roller. If an 8-beam set is run, let four beams be on top of the rod and four underneath it; on a 6-beam set run it three over and three under, etc.

Of course, a man should be sure that the cylinder traps are working freely to prevent condensed steam (water) accumulating in the cylinder. If the steam discharge from the slashers goes into a common drain going back to the boilers, I would suggest taking the drain pipe from the slashers loose and letting the discharge go to the open (pour out on ground or in sewer or barrel) in order to see if the cylinders are being properly drained.

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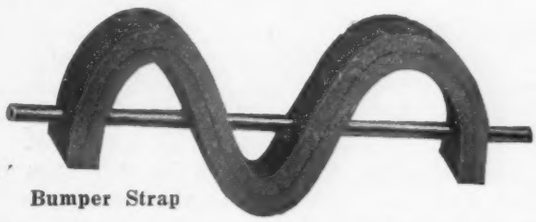

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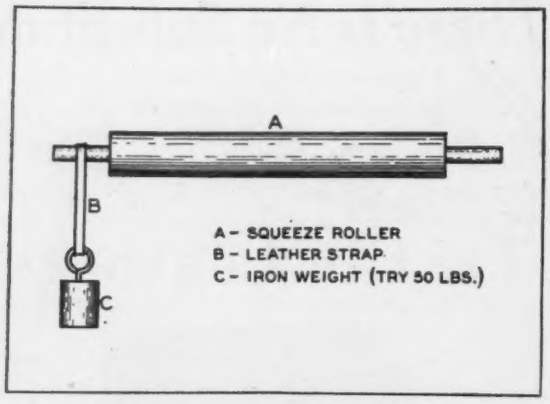

The squeeze rollers on the slasher may be too light. If this is the case, a test can be made by taking two weights and merely hanging one on each end of the back squeeze roller (the one next to the cylinder) by means of a leather strap. (See sketch).

Or, the slasher squeeze roll blankets may not be suited to the work he is running. If he has over four yards to the blanket, I would suggest trying a blanket with only four yards, and note the result. Simply cut the 5- or 6-yard blanket down to four yards.

R. T. (S. C.)

Belated Comments.

Discussing a wide variety of subjects which have been covered in previous issues.

EDITOR COTTON:

I am sending in some more comments which represent my opinion of articles I have seen in past issues of COTTON. I hope they will prove worthy of publication.

In believe Mr. Soniaman, in the November, 1929, issue, gives the right idea about correct testing and the relative value of it to the mill. It is the progressive mill that is installing a testing laboratory or engaging some specialist to do their work regularly, for without regularity the full value of testing is lost. I believe the Cotton-Textile Institute will stress this point and then the mill management will probably believe them.

In the same issue "V. T. (GA.)" asked what causes the ends on a slubber to run slack until the bobbin is about half full, and then run tight for the rest of the doff. That there might be something wrong with the shape of his cones is very probable. I have had trouble where the set would run all right until the belt was half way across the cone and from that point on would run tight and keep snapping ends. This, we found, was caused by the cone belt being too tight and would not shift freely at that point. After adopting a slacker belt, we had no more of the trouble.

The article, "Does Your Mill Get the Right Cotton?" by "CONTRIBUTOR NO. 4655," was very timely. He put before the mill the solution of their greatest problem. Most of our buyers know nothing of the running conditions of their mill and they buy, as they believe, to advantage; that is, when they buy a few points below the market they feel that they have saved the mill money, but when the cotton is run through and the waste made and the loss of production is considered it will be found that this has more than offset the slight saving made in buying. The man who buys cotton should know whether the cotton has good or poor character and how it will spin. When our managers require this their mills will begin to make money and be in a better position to meet competition.

The very favorable comments concerning the use of oil spray by J. J. Brown, also in the November issue, were certainly in accord with my own ideas about it. He showed that he has the subject well in hand. I have experimented rather extensively with the oiling of cotton and judging from my experience, I would say that the majority of his statements are correct.

I have known of places that were using oil with good results and because a change would be made in superintendents the oil would be discarded. Right away the carding and spinning started running worse on account of the increased amount of fly. In most cases the only reason the oil spray was stopped was due to the fact that it had been installed by the new superintendent's predecessor. This is a mistake and we all should be broad-minded enough to take advantage of the other fellow's good ideas.

I have found that my carding and spinning has improved considerably since adopting oil. I have also noted that various yarns made from the same hank roving can be spun with a much longer draft and less end breakage where oil is used. Where oil was used the yarn also had a much better appearance.

I have spun 52s warp yarn, using 4.25 standard twist, 1 3/16-inch cotton, 1⅞-inch rings, No. 2 flange, ¾-inch bobbin, 12 degree one circle traveler, and the yarn spun unusually well. It was necessary to reduce the spindle speed to 8,500 r.p.m. on account of the twist.

I am not a weaver but I received a great deal of pleasure, as well as some helpful information, from reading the articles by the winners of the OLD-TIMER'S Weaving Contest, which appeared in the December, 1929, issue. They show that the writers are thorough students in their line and have written their articles so that they are understandable. Why not have more of these contests? We can get a lot of helpful information from them.

The article by A. P. Aldrich, Jr., on "Maintaining Uniformity in Picker Laps" brings out some interesting points. I especially liked his suggestion about building a conditioning room for picker laps, and keeping at least one day's supply of laps on hand in this room. I believe the saving would pay for the extra floor space. I do not believe in conditioning the picker room. There is too much moisture in the cotton as it is received and there are too many elements which vary. The drier the picker room, the better the cleaning. And as the latter is the objective we are striving to obtain, we should endeavor to keep the room in the best possible condition for this.

I was very impressed with the way "J. T. D. (MISS.)," in the December, 1929, issue, answered the question, "Does it pay for an overseer who is getting along in years to stick to the company he is working for and wait for the promotion that may never come

—or is it better for him to step out and seek what he desires?" I agree thoroughly with him in that I believe a man should allow his desires to be known. If he does not it is too often taken for granted that he is satisfied. We should ask ourselves if we are willing to accept the additional responsibility and work. We should also remember that promotion means more than a few dollars in our pay envelope. It is necessary to study the new position in order to keep up with it.

I enjoyed the article on card grinding by "C. R. D. (N. C.)" in the February, 1930, issue very much, and agreed with him in most instances. He said, "According to my experiences and methods, the rollers should be set in the following manner: pull down one end a little, keeping this up until the roller is striking a little fire every now and then from one side of the card to the other. The roller should finally be set so that the sparks will be even all the way across the card. When the rolls are once set, they should never be pulled down deeper unless new clothing is being ground. In such a case, the rolls must be pulled down a little every now and then."

I find that I get better results by first setting the wheels to the cylinder and the doffer to a gauge. I then know that they are in line and will not dig into the wire on the starting of the card. Most of us have a tendency to keep the emery fillet on too long and we lose the benefit of grinding as the cutting edge of the emery is lost. The fillet should be changed at least every two weeks. Sometimes the condition of the wire calls for a deeper setting of the wheels during grinding.

The article by "CONTRIBUTOR NO. 4022" on the second hand, which also appeared in the February issue, was a great article. The second hand should always be informed of all things that are being tried out, for, as pointed out by our contributor, he sees the work from an angle different from that as seen by the overseer and superintendent. He can be of wonderful assistance, especially in keeping down dissension.

The article, "'Wash' Agrees with 'Old-Timer!'" which appeared in the March issue, was very good, but I do not agree with the following portion of it:

"There are many cotton mills that have the pension system, when instead, they should say to many of their workers: 'You were paid in full for past performance. At the outset you demanded as big a salary as your ability could command; as you became more valuable, whenever you could, you seized the advantage at every stage; throughout your progress you held out for the full value of your increased worth. Therefore, we are under no obligation to you, as we feel that the score has been evened.'"

I believe that contributory pension systems are all right and one of the best incentives for good help and obtaining the best results. It means a lot to the operative to know that he will be rewarded for his loyalty.

"T. A. D. (GA.)" asked several questions in the March number that I will try to answer. His first question was, "Do worn spinning rings have a tendency to weaken the yarn?" I think they do due to the fact that the traveler will not run with a smooth motion but will have a jumpy action which will have a

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tendency to strain the yarn.

Another question he asked was, "What experience have you had with vacuum card strippers, and do your cards stay sharp longer than when stripped with the old time band and hand stripper?" From my experience, I can say that the wire on the cards stay sharp as long with vacuum stripping as with the brush, providing both are properly set.

In answer to his question asking how often comb boxes should be cleaned out, I will say that comb boxes should be oiled at least once a week with good oil, and cleaned out each time the card is ground.

I want to end up by telling about how much I think of OLD TIMER. He is certainly great, and he always gives us something that makes us think more often. Most of the readers I know start their issue by reading OLD TIMER'S article first.

CARDER (MASS.)

Bringing Up the Breaking Strength.

EDITOR COTTON:

Having been a constant reader of the "HOW OTHER MEN MANAGE" department for sometime, I feel that the following article might prove of interest to the readers of the department.

In the making of fine yarns, say from 50s to 150s, the weight should be removed from the middle top roll. By so doing it is possible to get from 1/16-inch to ⅛-inch closer settings of the rolls—sometimes better than that.

By replacing the middle rolls with rolls weighing about 1700 grains it is possible to close both top and bottom rolls tight. This setting should increase the breaking strength of the yarn from one to three pounds, or more. This depending, of course, largely upon preceding processes.

Another advantage of these light rolls is that when a change is made in staple it is not necessary to open roll settings. I have run up to 1½-inch cotton with this roll and find it makes much evener yarn, with no sign of cockeling, than when using the heavy rolls.

When rolls are closed care should be taken to see that the stirrup is not rubbing on either front or middle steel roll. Lapping on the middle steel roll is entirely eliminated by this method.

On a test that I ran I found on 80s yarn with the middle top roll self weighted the breaking strength was increased two pounds. Then with light top unweighted middle roll the breaking strength was increased 1½ pounds more, thus making a total increase in breaking strength of 3½ pounds. A very important item for fine yarns. This yarn is made with a twist multiple of 4.75, a front roll speed of 69 r.p.m., a spindle speed of 9200 r.p.m., and a draft of 13.3.

These light rolls weigh about 1750 grains as compared to a weight of 8020 for regular middle spinning rolls. They can be very easily made by cutting ⅜-inch steel stock to the length of the roll being used. A working example is shown in Fig. 1, which will aid in understanding the construction of this light roll. This stock is then knurled on boss and covered with four cots of regular cloth for roll covering, with the

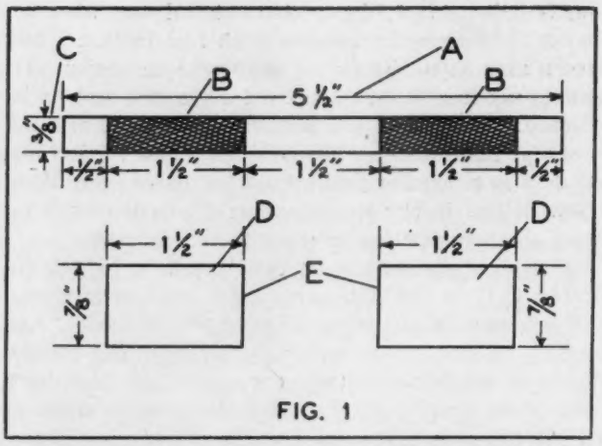

FIG. 1

In the above illustration A represents the length of arbor, B the boss of the roll, C the width of arbor, D the length of cot and E the width of cot.

usual leather top cover as the last step. These five coverings should make a finished roll of about ⅞-inch diameter. The ⅞-inch diameter is used so that the clearer boards will not stop the roll. The back and front rolls are 15/16-inch diameter, and carry the weight of the clearer.

I would not advise the use of this roll with revolving clearers if they are turned by front and middle rolls.

D. M. C. (MASS.)

A Method of Preventing Split Laps.

This man carries the split-lap-preventer idea one step further. What do you think of it?

EDITOR COTTON:

Every card room foreman and every mill superintendent knows what split laps will do for evenness and yarn weights. This is especially a problem with a mill on raw-stock dyed cotton, where the dye causes a slightly gummy texture on the surface of the lap.

The machinery manufacturers have what is known as a split-lap-preventer installed in their modern lap pickers, at the point where the cotton is delivered from the screen section to the calender rolls. This usually consists of a series of iron prongs or fingers extending up from the draw roll plate into the bite of the calender rolls. These press on the underneath side of the sheet of cotton as it enters the calender rolls, slightly creasing and condensing stock at these points. These creases act to bind the stock at these places and help to prevent the lap from splitting when unrolled.

As everybody knows, this principle is sound, and the only disadvantage is that it is not carried far enough. With this arrangement alone, only the lower surface of the lap is acted on. We have carried this one step further and made an arrangement for acting on the top surface as well.

We took out the last calender roll, which is the smooth roll with the ends recessed into the sides of the finisher, and which is several inches in front of the vertical set of calender rolls. The cotton stock passes under this roll after it leaves the calenders and before it begins to roll into a lap on the large fluted rollers.

call them Robots if you will . . . *but -*

WORK in an industrial plant is often done by a trained operator who has become virtually an automaton. He accomplishes various acts almost unconsciously or in apparent abstraction. He's a mechanism attached to his machine — a Robot. "He can do his work blindfolded," says a manager. "Why bother to have good illumination here?"

But—the production of just such workers has many times been proved to increase from 10 to more than 15 per cent when they are given adequate and proper light to work under. Naturally! Because more than 70 per cent of *all* our actions—automatic or not — are directed and timed by vision. Poor light, too, means eye-fatigue, nerve-fatigue, sleepiness, inefficiency.

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VAPOR LAMP COMPANY

(Formerly Cooper Hewitt Electric Company)

(See next page)

Cheaper to prevent than to pay for—

Hundreds of industrial accidents happen like this:

The power was shut off. Two workmen started to disassemble one of six semi-automatic, group driven machines. A repairman, cleaning the others, needed a certain tool. A bright, bare drop-lamp, suspended as usual just above the machine's working level, threw its glare into his eyes—and cast the dark shadow of the machine-frame across the safety switch. He reached for the tool and grasped—the switch.

✚

Result: A part of one workman's finger severed; the other's foot bruised and his arm cut.

✚

Adequate and proper illumination, the insurance company reported, almost surely would have prevented this accident—just as it would prevent thousands of others throughout industry.

BETTER THAN DAYLIGHT

And who paid for this accident? Well, in compensation and medical charges the insurance company paid—$317. In uninsured and uninsurable damage to machines, plus idleness, plus interrupted operating schedule, the employer who was "economizing" on his lighting bill paid—$1,700.

✚

On the other side of this page you may read how Cooper Hewitt mercury-vapor illumination can prevent accidents in industrial plants by providing light that is "better than daylight." In hundreds of modern plants today Cooper Hewitt light is *proving* how much cheaper it is to prevent than to pay for accidents—in addition to increasing production, reducing spoilage and otherwise improving efficiency generally.

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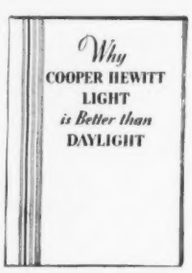
853 Adams St., Hoboken, N. J.



MANY other advantages of Cooper Hewitt illumination are given in a simply written booklet "Why Cooper Hewitt Light is Better than Daylight" which will be sent gladly upon request.

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GENERAL ELECTRIC
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(see preceding page)

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This roll is put in the lathe and a series of grooves are cut in it, a quarter of an inch apart and one-eighth inch deep, beginning about one-quarter inch from one end and continuing to the same distance from the other end. This should be done with a V-pointed tool, run in at right angles to the roller. The cut is not a continuous spiral from end to end, but a series of individual cuts, the toll being withdrawn and run in to the proper depth for each groove.

With this spacing and depth the roll will present an outside surface of a series of pointed teeth, one quarter-inch from point to point. These teeth act on the top surface of the lap stock just as the fingers of the patent preventer act on the lower surface, creasing the lap and causing the lap to hold together better.

Of course this does not stop all the split laps. We still have them; not so many, but they still show up now and then, especially with heavy dyeings of raw-stock or when we don't have time to let the stock dry out thoroughly. If any other contributor has done any special work along this line we would like to hear about it, as I imagine this is somewhat of a problem with us all. CONTRIBUTOR NO. 4894.

Preparing Raw Stock for Dyeing.

EDITOR COTTON:

Your "CONTRIBUTOR NO. 4914" asked some interesting questions. He wanted to know whether, in preparing cotton for dyeing in a vacuum raw stock machine, it is better to use soda ash for boiling off and wetting out the cotton, or to use some of the prepared soaps. He asked particularly for discussion on sulphur colors. I am very glad to give our experience in this connection.

We have found that when dyeing sulphur colors in any type of pressure machine, it is not necessary to prepare by boiling off with soda ash; we have found that an addition of a good grade of sulphonated oil or Nekal BX to the dyebath is helpful, and, in case of hard water, we recommend 1 to 1½ pints of Intrasol per 100 gallons.

But, in order to produce level dyeings, it is most important to select colors of the highest solubility. It is also of great importance that the dye be well dissolved, and the proper amount of sulphide and soda ash be used. The old-timer's set rule to use pound for pound sulphide and dye does not work every time. Many sulphur colors need, even when dyed in deep shades, one and one-half to twice the amount of sodium sulphide, concentrated 60 to 62 per cent. In light shades, say one per cent, three times as much sulphide as dye should always be used and very little salt, if any. Compressed cotton should be run through an opener before dyeing.

Under normal conditions, the following formula will produce good results: Pack the machine as evenly as possible. Do not load too heavy; 800 pounds is considered a normal batch. Run in the water—or standing bath—circulate and heat to 150 degrees F.; add the dye solution; run up the temperature to a boil (or, better, hold it just below a boil); and circulate for half-hour. Then add the salt and run for half-hour or

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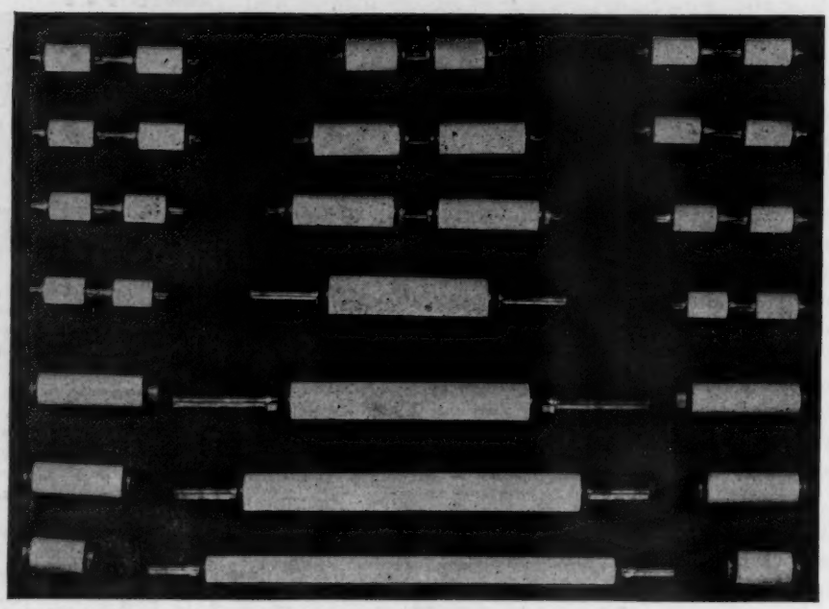

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45 minutes longer. Draw off and rinse immediately, or, in the case of colors that must be oxidized, either throw out on the floor or add sodium perborate to the last rinse.

When dyeing *direct* colors, it is equally important to select the ones possessing the best solubility. Light shades, we find, are best started cold without any previous wetting-out, gradually bringing to a boil, and adding salt only when necessary. Hard water should be corrected, and when dyeing compressed or bollies cotton, an addition of ½ to 1 per cent of Nekal BX will produce good results. No rinsing is necessary, except for the heavier shades. The brilliant sky blues and other colors dyed in an acid bath are all of the level dyeing type, but care must be taken to avoid contact with any kind of alkalies.

Developed colors are dyed mostly in full shades and as a rule produce very level dyeings.

In vat colors, wet out for 15 minutes at the dyeing temperature with an addition of ½ to 1 per cent of Nekal BX, and dye in the same bath. Spring the bath with one pound of hydrosulphite concentrated and one pound of caustic soda dry per 100 gallons. Then add the well-reduced dye and run for 45 minutes to one hour. Complete reduction must be maintained throughout the dyeing process. Towards the end of the run make a test with Indanthrene yellow paper, and if the reduction is weak, add more hydrosulphite and caustic. Draw off, rinse, oxidize, and finish by boiling 20 minutes to half-hour with four ounces soda ash and four ounces Nekal BX per 100 gallons. Raw stock should never be finished with soap as it makes the cot-

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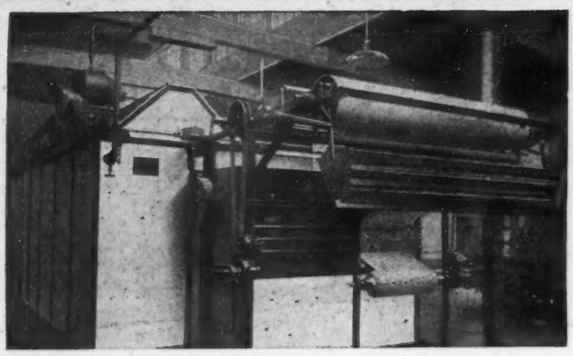

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ton sticky and difficult to process.

Basic colors. The mordanting with tannic acid or sumac presents many difficulties and the result is always harsh cotton of poor spinning qualities. But with Katanol ON, we have successfully applied basic colors in pressure machines, with acceptable results as regards fastness and processing. The cotton is mordanted for two hours at 140 degrees to 160 degrees F., with about five per cent Katanol ON and 40 per cent common salt. Draw off, rinse well, and dye as usual for this class of colors, with the addition of two per cent acetic acid. CONTRIBUTOR No. 4929.

Putting Starch on Looms Belts.

EDITOR COTTON:

This replies to the question of "CONTRIBUTOR No. 4768" with regard to using corn starch on loom belts. It has been so long since I have seen starch sprayed on belts that I have almost forgotten what it was put on for. I remember at one time, in a room of broad looms, we used starch on the belts for the reason that the looms were set in blocks of four, the loom pulleys were on the inner side of the loom blocks, and the weavers all had pails that contained water which they washed up in. This pail set on a stand about 24 inches high placed between the two loom pulleys. When the weavers washed their hands or face they used a lot of soap and the soap and water was splashed on the loom belts and this caused the belts to slip in places where there was no soap and water and to grip where the soapy part of the belt came in contact with the loom driving pulley.

By putting starch on the belts, this would cause them to have a smooth surface throughout their whole length, preventing the loom from jumping, or the lay from jumping unevenly. I have also seen starch put on oily belts, and on belts driving from a low damp basement, but on a friction driven loom there is no need of starch as the friction, if set correctly, will eliminate this uneven running.

I think that "carding" a belt is the best way out of the trouble. By "carding" I mean to use a piece of board about one-inch thick, six or eight inches long and about four inches wide, covered with card clothing. Put a strap on the back of the board to place the hand in, then it is ready for use. If the belt is very sticky, it will require more carding than otherwise. The belt should be carded until the leather becomes fuzzy on the face.

P. T. S. (MAINE).

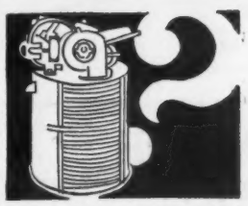
An Old-Timer Says

(Continued from page 443)

OLD-TIMER once took charge of a mill as superintendent where the president informed him he would have to hire a new boss carder and a new boss spinner because in the first place they were not on speaking terms and in the second place both of them had wanted the job as superintendent and therefore had it in for OLD-TIMER because he got the job.

Five years from that date the boss spinner was

TRUTH LIVES FOREVER • • •



A fact is a fact, and is always the same. An opinion may vary with what you had for dinner.

Socrates, history's great searcher for facts, found the truth by the question and answer method—a method that today is used to discover the truth about Termaco Roving Bobbin Cleaners.

A few of the answers of Dacotah Cotton Mills, of Lexington, N. C., when questioned by the Socratic method, show that this mill, which cleans approximately 22,000 bobbins daily, has found a Termaco reduces roving waste 75 per cent, doubles life of bobbins, increases breaking strength of yarn, eliminates labor cost of cleaning bobbins and makes it practical to mix waste with raw stock without additional reworking.

The complete answers of Dacotah Cotton Mills and other Termaco users have been collected in an interesting "Fact" book. Just write us for "Termaco Facts." We would be pleased to send you a copy.

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still there. Seven years later I left to take a larger mill and the boss carder was still there. I saw him at the last textile show in Greenville and he shook my hand heartily and thanked me for teaching him a lesson. That is just an actual experience and is given to prove that co-operation *will* work and brings peace and happiness to the parties involved when it is faithfully carried out.

A few months ago I heard a man who was head of a department make a suggestion to the head of another department of a firm they were both working for. The man making the suggestion was considerably older than the head of the department to whom he was making the suggestion. The suggestion by the older man was about something the younger man had exclusive charge of, but the older man felt it would not only help his department, but be better for the firm in resulting in more production or business and therefore more income.

The explanation the younger man gave for not accepting the idea was good sound reasoning, but there was just a little undercurrent in the conversation which seemed to tell me that the younger man was probably saying some things that he knew the older man was not thoroughly familiar with in order to carry his point, and that he was sure he was running his department better than the old man could run it anyway. This may be termed a mild illustration, which it is, in comparison with the others, and it is given to fit those men that the others do not, but frankly, brother, while you have been reading these illustrations, haven't you thought of some of *your own personal experiences*, and realized that you are guilty also? Sho! Sho! All right then, come on, be a good fellow, and join OLD-TIMER in the determination that you are going to rise above it; that you are going to be a bigger man; that you are going to keep your conscience clear.

Human nature is a most adaptable thing, if I may speak of it in that way. If you have a pleasant good morning for your fellow workers you will very likely get a friendly greeting in return.

If you knock a man he will in turn knock you as soon as he finds it out.

If you pull for a man, he will very likely pull for you when he hears of it.

Very likely you gave somebody a present Christmas because he gave you one.

If you yell at a dog and probably throw a stone at him every time you pass where he stays, he will soon get to where he will start to growl as soon as you come in sight.

If you whistle at him and pat him on the head, and maybe throw a piece of bread to him, then when he sees you coming he will come running to meet you, wagging his tail, and you can see the joy in his eyes.

I say human nature is adaptable—

Adaptable to good or bad.

Don't you see what OLD-TIMER is leading up to?

Don't you know that it is sound reasoning?

It is simply a law of nature.

Profit by it!

Co-operate with your fellow man and he will co-operate with you!

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Using BARBER TAPE is one way to keep costs down to a minimum, which is so important in these days of keen competition.
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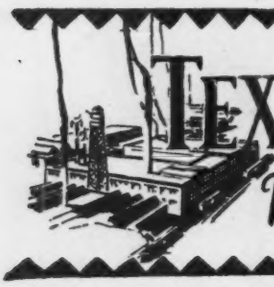


TEXTILE BOOKLETS *Worth Writing For!*

The booklets or catalogs briefly mentioned below may be obtained by any reader of COTTON who will write to the Company issuing them or to COTTON, Grant Bldg., Atlanta, Ga.

1. Cotton Picking, Carding and Spinning—Covered by three different catalogs. Picking catalog covers Opening and Picking Machinery; Card Room catalog covers Cards, Combers and Roving Frames; Yarn Machinery catalog covers Spinning, Twisting, Spooling, Quilling and Reeling. By Whitin Machine Works, Whitinsville, Mass.

2. Pepperell Equipment—10 page illustrated booklet, showing High Speed Warping from cones as adopted by Pepperell Manufacturing Company after thorough experiments. Installation and product photographs. Issued by Universal Winding Company, Boston, Mass.

3. Modern Practice in Textile Wet Finishing (Slack Loop System)—Practical discussions, various methods bleaching, covering batch, semi-continuous, fully continuous for cotton, rayons and mixtures. Request must be on mill letterhead. By Rodney Hunt Machine Co., Orange, Mass.

4. New Methods of Opening Cotton, also "Brown" Automatic Mixing and Cleaning Distributor—Illustrated booklets showing advantages of Centrif-Air Cotton Cleaning System. Pamphlets also on better picking and carding and pneumatic trunk line cleaner. Issued by Centrif-Air Machine Company, Atlanta, Ga.

5. The Bahnson Master Control—Bulletin No. 801, 5 pages. Illustrated. Automatic device designed to control humidifying equipment so as to maintain a constant relative humidity. By the Bahnson Company, Winston-Salem, N. C.

6. "Cotton" Weather Vein, 32 pages; "Rayon" Weather Vein, 40 pages; house publication, illustrated. Bulletin 58, 80 pages, illustrated; Manufactured Weather—the automatic control of air conditions within buildings. Carrier Engineering Corporation, Newark, N. J.

8. "Textile Brushes"—10 page booklet illustrating brushes for cleaning every part of mill. By Gastonia Brush Co., Gastonia, N. C.

9. "Custom-Built" Motors—Complete set of bulletins covering various types of electric motors for textile master mechanics and executives. By Louis Allis Company, Milwaukee, Wis.

10. Leathers, Textile—Booklet No. 101, 48 pages. Illustrated. Showing BONDARON Check Straps—Lug Straps—Harness Straps—Pickers—Belting, both round and flat, etc. Horsepower tables and other interesting information. By Charles Bond Company, 617 Arch Street, Philadelphia, Pa.

11. Whitinsville Rings—16 page illustrated booklet. Describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

12-A—Instruction Manual for Type K Bobbin Cleaner. Also, Instruction Manual for Utsman Bobbin Cleaner—two separate booklets describing adjustments of machines outlined, and also describing effect of bobbin shapes upon the cleaning process. These booklets intended for users of machines outlined. Applicants should designate which booklet is desired. By the Terrell Machine Company, Charlotte, N. C.

12-B—Instruction Manual for the Termaco Roving Bobbin Cleaner—booklet in four sections on adjustment of machine; on how to use machine to best advantage in reducing waste and saving labor; parts catalog; description of new attachments which can be applied to earlier models of the machine. By the Terrell Machine Company, Charlotte, N. C.

13-A. Equipping Modern Textile Plants—Booklet, 35 pages, illustrated. Describes value of Monel Metal equipment in textile plants and presents reports from mill owners and operators on actual experiences; equipment, descriptions, etc. Also Dyed in the Truth—Reprints of advertisements of special interest to textile dyers. International Nickel Company, Inc., 67 Wall Street, New York, N. Y.

14. Emerson Conditioning Ovens—2 booklets on conditioning of textiles, or determination of the amount of moisture in textiles. Issued by Emerson Apparatus Co., Melrose Highlands, Mass.

15. The Powers System of Thermostatic Control—"Slasher Room is Bottle-Neck of Textile Mill." 18 page illustrated booklet showing importance of proper treatment of cloth in slasher room and advantages of Thermostat over hand control. Also room temperature control illustrations. Issued by Powers Regulator Co., 2739 Greenview Ave., Chicago, Ill.

17. Arcy—12 page booklet on getting most value from starch in warp sizing and cloth finishing. By Drake Corporation, Norfolk, Va.

18. Popular Industrial Chemistry—162-page handbook for dyers, chemists, finishers, purchasing agents. By Kali Manufacturing Company, Philadelphia, Pa.

19. Quaker City Chemical Co.—48-page booklet containing useful information, tables, formulas, on dyeing, bleaching and finishing all textiles. Issued by above company, 2786 North Broad St., Philadelphia, Pa.

20. Bleaching, Dyeing, Finishing and Printing Textile Goods—70-page booklet containing interesting information on faults and methods in finishing goods, useful tables and definitions. By Bosson & Lane, Atlantic, Mass.

21. Warp Sizing and Composition of Cotton—Folder containing reprints of articles carried by textile publications of interest to progressive mill superintendents. By Seydel-Woolley Co., 748 Rice St., Atlanta, Ga.

22. Tragasol and Its Uses—Booklet, 60 pages, constituents and properties—Dissolving and preparation—sizing and dressing of yarns—cloth finishing—miscellaneous. By John P. Marston Co., 247 Atlantic Ave., Boston, Mass.

23. Practice of Rayon Sizing in American Mills, Raygomm, Lakoe Gum—Three booklets on products for sizing and finishing rayon and other textiles, presented by Stein Hall & Co., Inc., 285 Madison Ave., New York, N. Y.

24. Wyandotte in the Textile Mill—90-page booklet with information on bleaching, dyeing all textiles, including hosiery.—J. B. Ford Co., Wyandotte, Mich.

25. "Lupogum" and "Monopol Oil"—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

27. The Seven Factors of Belting Economy—Booklet, 112 pages, illustrated, containing authoritative information on the economical layout, care and operation of belt drives. Chas. A. Schieren Company, 88 Ferry Street, New York, N. Y.

28. Akron Belting—Practical rules and general information for users of belting with belting catalog. By Akron Belting Co., Akron, Ohio.

30. Lubrication of Textile Machinery—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York and New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

31. Canvas Baskets and Trucks. Doff boxes, trucks and for all textile uses. By Rockweave Mills, LaGrange, Ga.

32. Flooring, Open Steel, Area Gratings and Steps—Folder, 6 pages. Illustrated. For platforms, walks and stairs; non-slipping. By Kerlow Steel Flooring Company, Jersey City, N. J.

33. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness, and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog of Reading full fashioned machine with general information on subject of full fashioned knitting.)

39. Trend of Sales of Silk, Rayon and Cotton in the Piece Goods Departments; twenty-four-page booklet; prepared by DuPont Rayon Company in conjunction with National Retail Dry Goods Association. Copy furnished without charge by either of above. DuPont Rayon Co., 2 Park Ave., New York, N. Y.

40. The New Competition in Color—20 page illustrated booklet. Discusses future trends in business and their significance, present trend toward fast colors in textile industry and opportunity this trend offers for increased profits is properly utilized. By Franklin Process Co., Providence, R. I.

41. Budget Control—40-page booklet showing how each part of business budget should be prepared and principles of its effective operation together with a summary of benefits.—by Ernst & Ernst, accountants, 27 Cedar Street, New York, N. Y. (This company also has available booklets on Standard Costs, Business Control Through Analysis, The Better Wage, Factors to Consider in Working Out Mergers.)

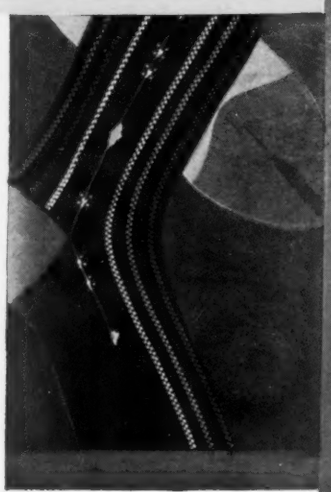
42—Textiles and the Telephone Typewriter—6 page booklet on telephone typewriter service for communication between mills and selling houses. By American Tel. and Tel. Co., Long Lines Department, Atlanta, Ga.

44. Points of Interest in and Around Atlanta—36 pages. Illustrated, describing places of scenic and historic interest in Atlanta in particular, and the Southeast in general. Atlanta Biltmore Hotel, West Peachtree, Fifth, Sixth & Cypress Sts., Atlanta, Ga.

Knitting Section

New

MODEL - E - S



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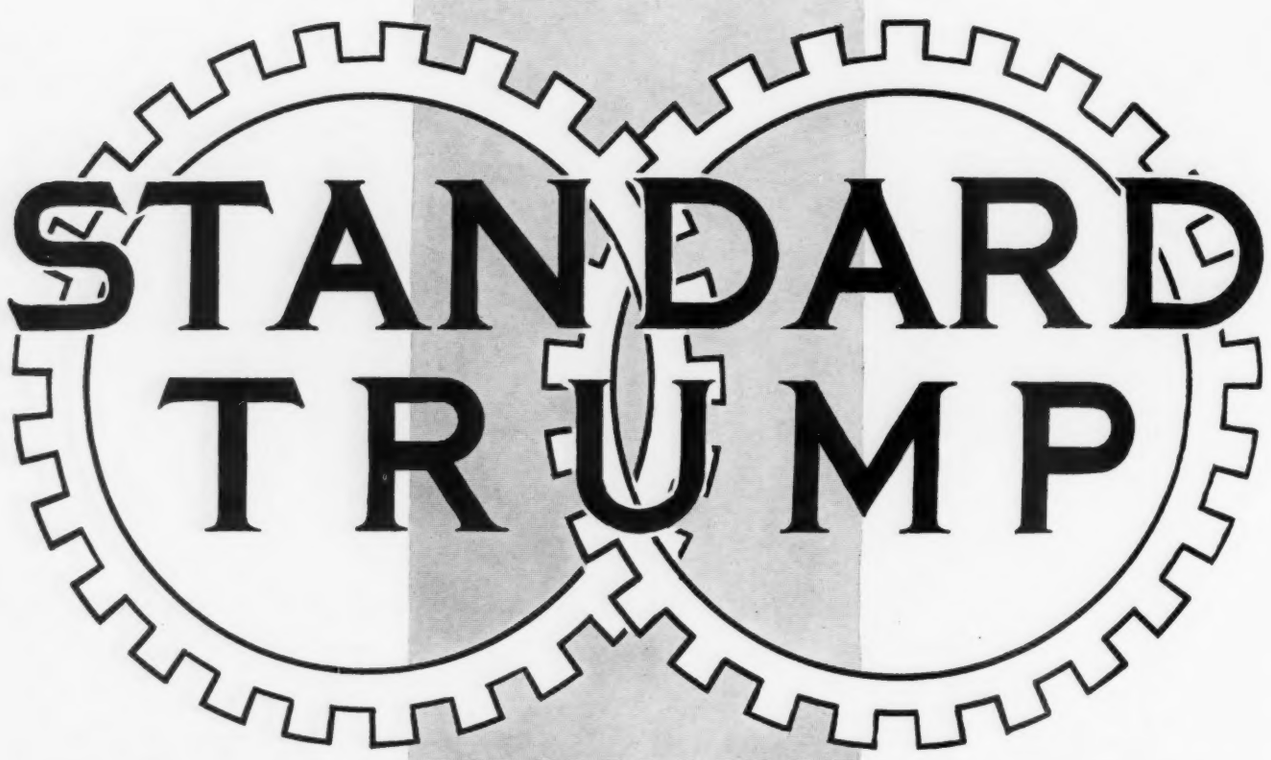
SCOTT & WILLIAMS

Incorporated

366 BROADWAY, NEW YORK, N. Y.



ESTABLISHED 1872

STANDARD-TRUMP BROS. MACHINE CO.

HOSIERY MACHINE BUILDERS

Factory: Wilmington, Delaware
Executive Offices: 366 Broadway
New York, N. Y.

Old Knitter's Ideas on Full-Fashioned Machine Lay-Out

DEAR DAD:

We are going to add some more full-fashioned machines. We have not fully decided how many sections we will have to the machine, either on leggers or footers. What would you recommend?

We plan to run the leggers day and night, and the footers day time only. On this basis, taking into consideration sections per machine, what proportion of leggers and footers will make a balanced unit?

With love to all

Sincerely,

YOUR SON.

DEAR SON:

Your inquiry relative to full-fashioned units is received. There is much difference of opinion on this question, and I can only give you the benefit of my experience and let you decide the question for yourself.

We started our own experimental plant in a building which was too small to accommodate 24-section machines, and therefore put in 20-section, both leggers and footers, on a ratio of three leggers to one footer. We ran the leggers and footers both day and night, and this made a well-balanced unit, while we were training help. With the ratio of one 20-section footer to three 20-section leggers, the balance is a little heavy in favor of the footers, but this is an advantage where you are training new help, as the footers are slower in reaching rated production. With expert help on the footers, two 20-section footers will take care of about seven 20-section leggers.

Later we built a new building to accommodate 24-section machines, and added 24-section leggers and 24-section footers in the same ratio as the 20-section, as a further experiment.

We found that the 24-section legger was a well-balanced one-man job, and we easily got the four-head proportionate increase in production, but not so with the footer. The footer was not as well balanced mechanically, nor was it as well proportioned to the operatives. The narrowing rods being much longer, they were more sensitive to temperature changes and the needle breakage and narrowing holes increased out of proportion to the increase in heads, while naturally the production decreased in proportion. We also found the machine more unwieldy to the one-man operative and the amount of work involved, in order to keep up the machine and get the rated production was beyond the capacity of one knitter.

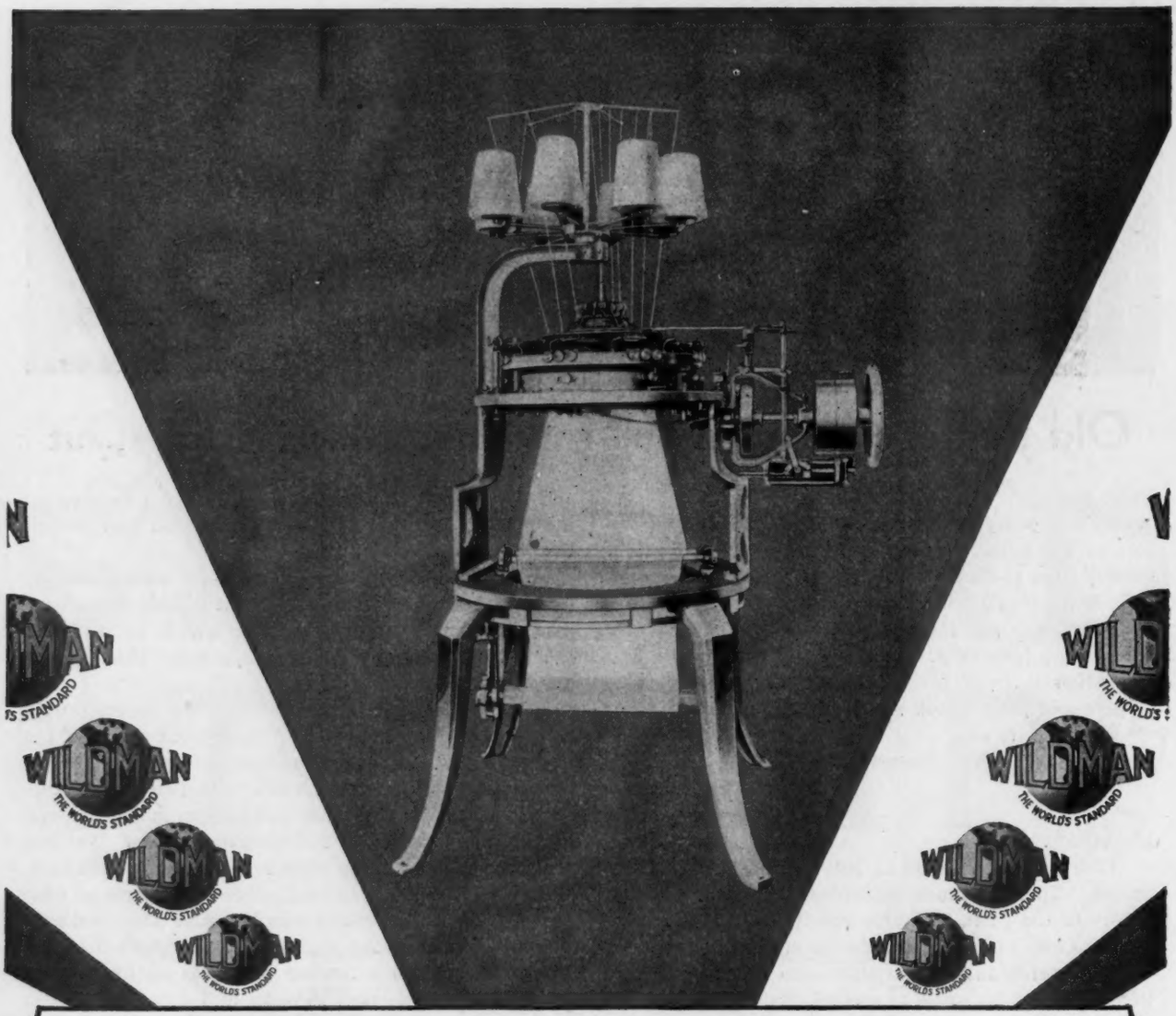
We solved this problem for awhile with a learner helper, then later a junior knitter helper on two machines, but this junior knitter had to be paid and the knitting cost per dozen was greater than on the one-man 20-section machine.

On the other hand, this condition was reversed with reference to the toppers. Twenty-four bars is too much for two toppers and not enough for three. We solved this problem for a while with two ten-bar toppers and a four-bar learner, but kittens make cats, and our learners were soon full-fledged toppers. We then tried the plan of three slow toppers, eight bars each This plan is not satisfactory, since slow operators need fast leaders, and a knitter should not be penalized with all poor toppers. An eight-bar topper who does not soon develop into a ten-bar topper is an undesirable operative. If she does develop into a ten-bar topper and you don't give her ten bars, she is never satisfied. So you are forced to divide the production among three toppers and let all three of them receive 20 per cent less than normal wages.

When floor space is taken into consideration, the 20-section footer balances well with the 24-section legger, as the 20-section footer and a topper at each end of the machine requires about the same floor space as a legger. Arranging the toppers at either end of the footer is preferable to wide alleys and toppers located in alleys between the machines in the way of the knitters. For these and other reasons I could mention, we found the 20-section footer much more desirable than the 24-section.

We found a lot of grief in night topping and footing, and like most mills who have tried it, abandoned the plan and bought additional footers. Twenty-four section leggers and 20-section footers on a basis of day and night legging and day footing only work out a very evenly balanced unit of three 24-section leggers to two 20-section footers. The three 24-section leggers will produce about 90 dozen legs in 20 hours, while two 20-section footers will foot this production in 10 hours, these figures being based on plain seven-thread 42-gauge production.

My suggested lay-out then would be three 24-sec-



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Rayon Body Material that is *right*.

WILDMAN MANUFACTURING CO.
Norristown, Pa.

WILDMAN
THE WORLD'S STANDARD

WILDMAN
SPRING NEEDLE BODY MACHINE

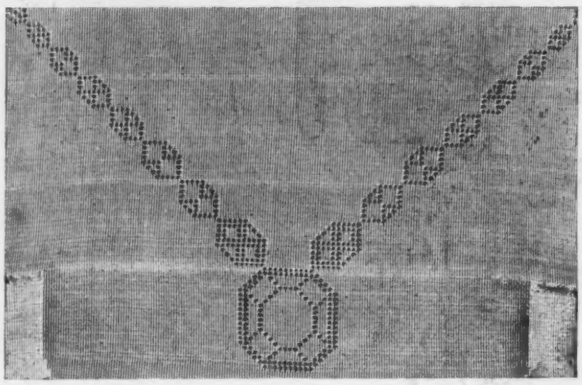
tion leggers to one 20-section footer for one shift operation, and double the footers if the leggers are to run two shifts. I believe you will find this a very practical and satisfactory machinery layout, and it is the one I would adopt if I were building a new plant. This set-up is practical also for all gauges.

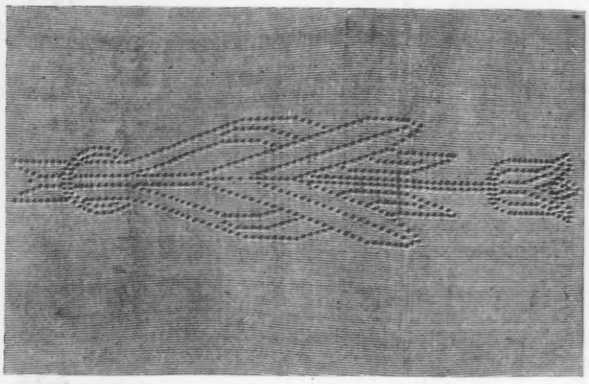
If, after investigation, you decide on some other arrangement, I would like to have your reasons for it, as I would be very glad to have some additional information on the subject.

I might add in conclusion that in buying new machines I would specify light hollow welt rods, and enough additional pattern chain and narrowing buttons to take care of any chiffon weight stockings you might want to make. These are small items, but are an item of cost when you buy them as supplies.

Sincerely,

DAD.





New Reiner Lace Attachment Effects.

A revolutioning method of knitting lace clocks and lace effects in full-fashioned hosiery has been announced by Dr. Robert Reiner, president of Robert Reiner, Inc., Weehawken, N. J., with the introduction of the Reiner Universal lace attachment.

Applicable to any Einsiedel-Reiner or Seyfert & Donner high speed full-fashioned hosiery machine, it is pointed out that the attachment for the first time provides means for controlling 45, 54, 108 needles or the entire bar. As a result of this extended control, it is explained, large lace designs can be effected which formerly were possible only on Jacquard machines. The accompanying photographs show examples of both frontal and lateral clock effects in lace work.

A method of application which promises to become very popular is the knitting of several courses of lace work immediately below the welt. It is pointed out that by this means the appearance of the hosiery is vastly improved while the construction of the stitch definitely prevents welt runs extending down the leg.

The attachment is manufactured entirely in this country. It was perfected in Weehawken, N. J.

Single-Unit Full-Fashioned Machine.

THE SINGLE UNIT full-fashioned hosiery knitting machine now is declared to be an actuality and no longer an experiment, since Dr. Robert Reiner's announcement a few weeks ago that three Einseidel-Reiner single unit machines are in operation in the mill of the Universal Silk Hosiery Co., in Weehawken, N. J., and that nine will be in production there within two months. Two of the machines in the Universal mill are 45-gauge, the other, 42-gauge. They are what are described as converted machines, that is, the common type of machines supplied with the attachments for knitting stockings complete, in a single operation, dispensing with footers and doing away with toppers, as the new machine does its own topping—in other words, keeps on knitting, after producing the leg, until the foot is completed. New machines, with the single operation attachments in place, will be ready for delivery in May, it was stated by Dr. Reiner while in Philadelphia several weeks ago arranging for representation in that city by H. M. Gwyn, former general manager of the Cadet Knitting Co., of Philadelphia, retiring from that connection soon after establishment of the Cadet company in Columbia, Tenn.

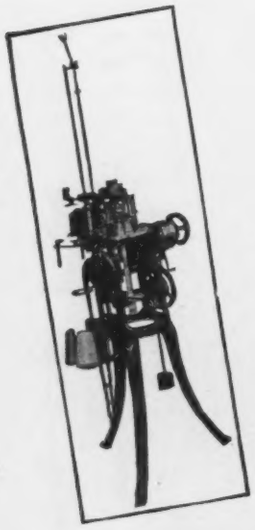
Producion from the Einseidel-Reiner single unit 24 section, 45-gauge machine, can, it is stated, be maintained at nine to eleven dozen pairs a day, this estimate contemplating fifty courses per inch, picot top and double-point heel.

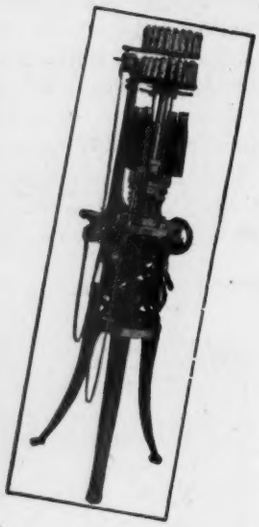
Since use of the single-unit machine is expected to effect certain economies in hosiery production, manufacturers are beginning to ask what are the prospects for its installation, and what will be the effect on mills employing present day equipment—leggers and footers—in the event of price competition. Under the most favorable circumstances, says a mill chief who has been revolving in his mind answers to these and other questions, installation of the new machines will be so slow that it will be some time before their combined output would come into serious competition with the production from the 13,000 and more leggers and footers in place in American mills. Numbers of manufacturers, he assumes, will want to wait a few years, for further improvements in single-unit knitting, for as these improvements appear, he maintains, there will be a rather heavy write-off for obsolescence of the early machines of this type. So, he deduces, at the start the new machine will find its better openings in mills having obsolete equipment of the legger-footer double job type.

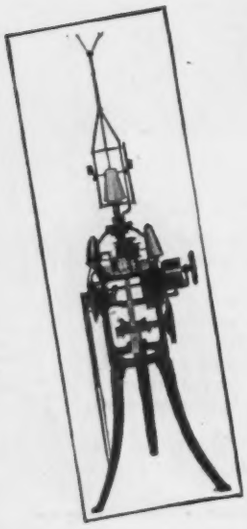
It seems ironical, says manufacturers, that while at least two single-unit machines evolved several years ago in American mills, have not yet reached the stage of commercial success, machines of German invention are in operation in a mill in New Jersey and six more will be shortly, with others going to a few scattered mills beginning with May. Besides, it is pointed out, a new single unit machine by G. Hilscher, Chemnitz, Germany, is annouced by its New York sole American agent, the Grosser Knitting Machine Co., New York, and another from the Karl Lieberknecht Company, in Germany, is announced by Louis Hirsch New York, U. S. agent for the Lieberknecht company.

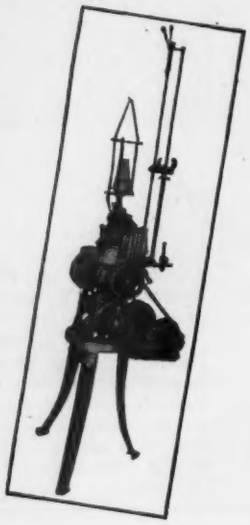
ALL TRUE-RIB

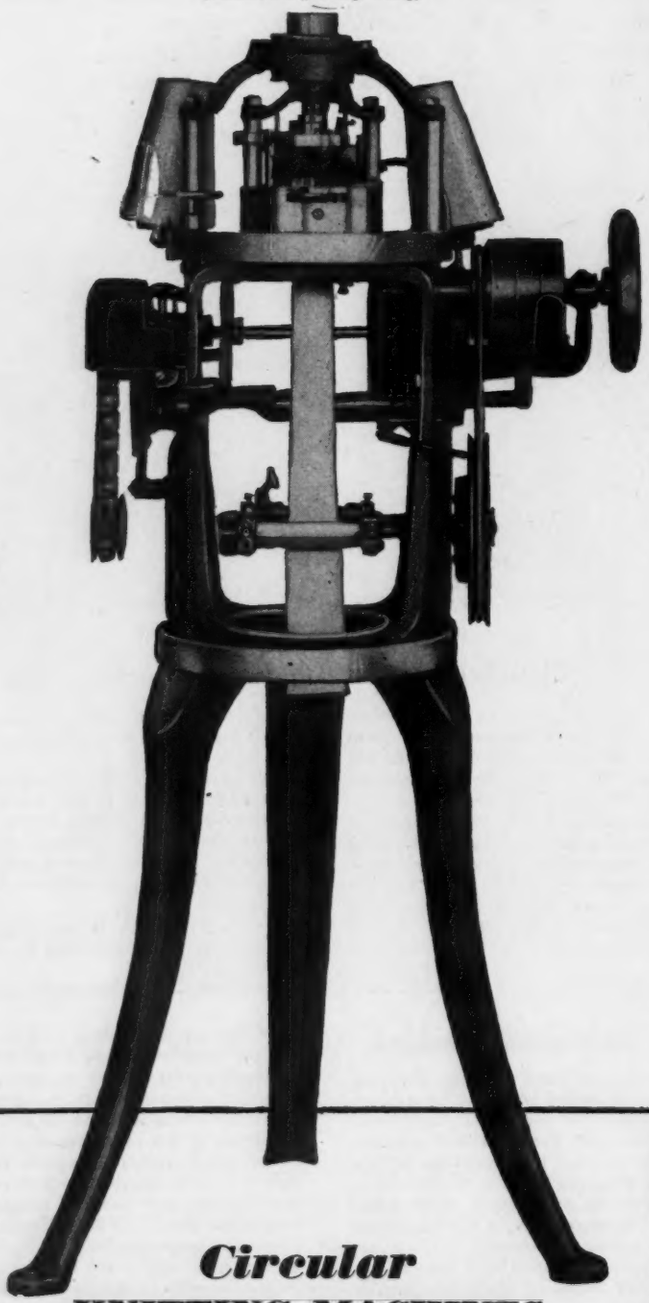
(Patented or patent pending)

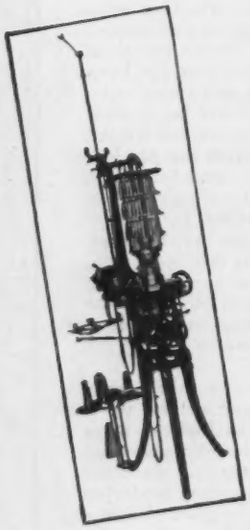


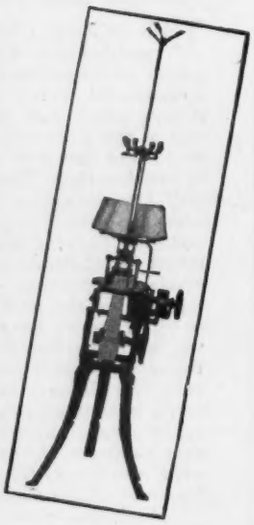












Circular

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Mill Purchasing and the Dyeing of Rayon

Interesting discussion of these subjects at the recent meeting of the Piedmont Section of the A. A. T. C. C. at Greensboro, N. C.

THE REGULAR WINTER MEETING of the Piedmont Section of the American Association of Textile Chemists and Colorists was held in Greensboro, N. C., on January 31.

The banquet and business meeting were held in the main ball room of the O. Henry Hotel, and were presided over by Samuel L. Hayes, chairman of the section. Chairman Hayes announced that the following men would make up the sectional committee for 1931: S. I. Parker, Clearwater, S. C.; R. M. Mitchell, Greensboro, N. C., and Malcolm MacKenzie, Charlotte, N. C.

An invitation extended by A R. Thompson, Jr., sectional secretary, to the A.A.T.C.C. to hold its annual meeting with the Piedmont Section in 1932 was approved of unanimously.

Two technical papers were read, one by Hill Hunter, purchasing agent for Proximity Mfg. Co., and other units in the Cone group of mills, on "Purchasing for Textile Mills," and another by D. O. Gryder, Southern Dyeing Co., Burlington, N. C., on "Dyeing of Rayon Yarns." A round table discussion followed the reading of this paper.

Purchasing for Textile Mills.

Mr. Hunter brought out in his talk that out of all the confusion there appears to be as to what the future textile economic status shall be, there appears to be one general agreement, and that is that the textile industry will be among the first to feel any improvement that may take place. He said such a feeling is well-founded for the following reasons:

"First, the industry has been in a depression for five or six years, and this brings to my mind an incident that happened at my home the other day, when my 15-year-old boy in all seriousness asked me if there ever had been a time when the textile industry was good, and this question was well-founded for, within his recollection, that is his recollection of anything economic, the industry has been in bad shape.

"Another reason is that the raw materials entering into textiles, that is cotton, wool, silk, rayon, etc., have declined and have been more drastically deflated than most other commodities; and still another reason, the finished product, cotton goods, silk goods hosiery, rayons, etc., show the most drastic declines, that is in proportion to the prices of the raw materials."

Further on in his talk Mr. Hunter stated that the requirements of a textile plant can be divided into three classifications. "First there are the materials that enter into the manufactured product, such as dyestuffs, chemicals, sizing, finishing materials, etc. (Cotton is not taken into consideration here as this is bought and handled by the cotton department, which in the larger organizations is entirely separate and distinct from the general purchasing department).

"Second, there are materials essential to plant operation, such as coal, oil, shipping supplies, and a long list of items that could be classified under mill, electrical, machine shop, power plant and textile supplies, entirely too numerous to mention in detail.

"Third, requirements that enter into and are part of the capital account, such as equipment for enlargement of plant capacity and buildings."

In a very interesting manner Mr. Hunter summed up the relation of buying to selling as follows: "Fundamentally, the buying department of the business is also a selling department, money being the commodity disposed of. Anyone can exchange a dollar for a piece of merchandise, but making the money go the maximum distance is not so easily done. Just as some salesmen of merchandise are able to present their wares in more attractive form, some companies are able to make their money look bigger and better, that is, they will standardize as far as possible to bring their volume up to an impressive point, pay bills promptly, making the credit phase attractive, build up a reputation for fair dealing and make friends in the trade."

Mr. Hunter pointed out that he knew of no set rule to follow in the technique of buying, but that there was one thing he had always found it wise to adhere to and that was the policy of considering the integrity of the maker of a product very carefully before purchasing. He indicated that this would eliminate the purchasing of a large amount of worthless products.

Dyeing Rayon Yarns.

Mr. Gryder, in his paper on "Dyeing Rayon Yarns," told of how the chemical structure of the different rayon fibers, causing in some cases a big difference in the affinity for dyestuffs, will make it necessary to alter the dyeing methods in order to prevent streaky dyeings. He pointed out that cuprammonium rayon possesses an affinity for dyestuff that easily distinguishes it from the other fibers, making it positively necessary to retard the dye to secure even dyeings, and that this may be done by starting a cold bath with the addition of soap or ammonia and gradually bringing the temperature to 150 degrees F.

He told of the importance of proper preparation for dyeing, stating that "the machines must be loaded uniformly, of the right tension, and the right quantity for each tier. For slow exhausting and level dyeing colors, the r.p.m. should be low. This causes less agitation of the fibers; therefore less breaking of the filaments. In the case of basic or vat colors, which seem to be the most difficult for levelness, it is best to have a higher r.p.m. to insure more turnovers per minute, as this class of dyes exhausts very rapidly."

Mr. Gryder stated that scouring or wetting out of

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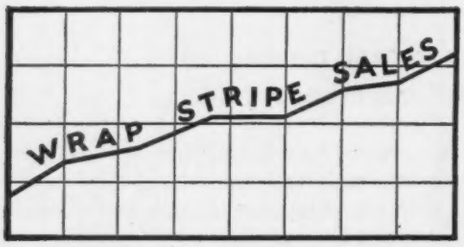
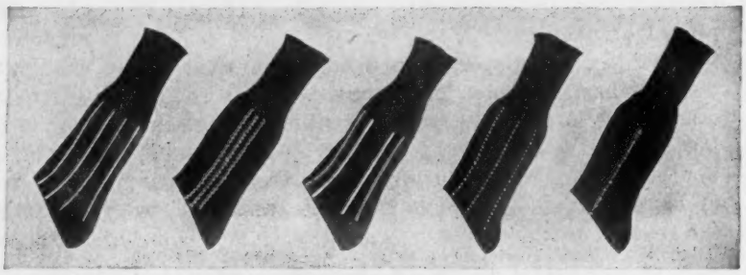


A composite sales report, reflecting February activity in all important hosiery buying centers showed true wrap stripe patterns to be leading all others in ready acceptance and topping all others in prices paid.



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WRAP STRIPE
●
14 COLORS
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14 STEPS
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UNLIMITED PATTERNS
●
UNSURPASSED FINISH
●
UNEQUALLED MARKET ACCEPTANCE
●
HAS NO COMPETITION
●
USERS ARE FULLY PROTECTED BY OUR PATENTS

INTRODUCED three years ago, the Banner Wrap Stripe machine has established new records for continuous high speed operation under stress and strain. Designed with the simplest engineering principles, having all parts easily accessible, and built to the rigid Hemphill standards of production, this machine has proven itself a practical one from every manufacturing viewpoint.

MILLS WITH BANNER WRAP STRIPE EXPERIENCE ARE CONSTANTLY INCREASING THEIR WRAP STRIPE EQUIPMENT. The machine has proved itself a money maker under all kinds of market conditions.

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AUTOMATIC HOSIERY MACHINES

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BRANCH OFFICES:

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rayon is important in the case of light shades, but in the case of dark reds, blues and blacks it is not necessary.

He had the following to say in regard to drying: "The reaction of dyes to drying must be watched carefully by the dyer so that he may make necessary variations in his matchings. I attribute the darkening of rayon colors in the dryer to the physical change in the rayon, such as the contraction of the diameter of the filament. Not only must the dyer have the temperature of the dryer under his control for the sake of color, but it must leave the physical properties of the rayon unchanged. Too high temperatures produce what is known as case hardening, a wire like feel to the fiber, that will not give a soft or flexible surface to the finished product. I consider a temperature of 160 degrees F. over a period of eight hours with a downward current of hot air, which is not too strong to cause tangling of the skeins, sufficient to dry any rayon."

New England Mill Situation.

(Continued from page 432)

Net sales for the year were $36,843,572 and the cost of goods after the sale was $36,630,687, leaving an operating profit of $212,885. The report compared with the 1929 document showing a net profit after all charges of $1,031,168. Sales were sharply reduced during the year, net sales charged due in part to lower values of merchandise, decreasing $10,760,-101 or 22.6 per cent, while unit volume charged declined 11.5 per cent, according to the statement of Treasurer Alfred E. Colby. The company reported the progressive decline in raw materials values, business depression, and intense competition for the lack of ability of the company to sell its products in volume at profitable levels. The company during the year purchased or called the balance of its five-year 5½ per cent notes and for the first time in many years is out of debt. Regulation of production and the belief that raw materials had touched bottom were cited as encouraging factors for the new year.

William Whitman and Company and their subsidiaries suffered a loss of $611,539 in 1930 as against a small loss in 1929 and earnings of $179,000 in 1928, according to the annual report issued in Boston during the month. Reduced activities, inventory losses and mark-offs brought about the loss. William Whitman, Jr., president, said the concern was in excellent financial conditions to await the return to normal times.

Harmony Mills also reported a loss for 1930, the cotton goods manufacturers citing a loss of $837,996 after interest, depreciation, and taxes and an inventory write-off of $367,-883. In 1929 the company made $28,779 or $2.34 per share on 12,252 shares of 7 per cent, preferred. The annual statement of the Cabot Manufacturing Company also issued in Boston was more favorable, showing a profit of $181,653 after allowing for plant and inventory depreciation. The concern, however, made $349,213 the previous year.

In the New Bedford fine cotton goods center also were heard echoes of an unsatisfactory 1930. The Whitman Mills of New Bedford reported a loss for the year of $859,623 before depreciation, and the annual report of the treasurer said lack of capital made it impossible for the concern to continue in active business. Everything is being held in readiness for reorganization and resumption of operations, or for consolidation or outright sale of the property. George W. A. Pope was re-elected treasurer, and other officers were re-elected.

The Soule Mill, New Bedford, showed a manufacturing profit of $68,000 meanwhile, with the net gain announced to stockholders at the annual meeting of $5,004.63. Dividends of 6 per cent on capital of $1,260,000 were declared. Frederick H. McDevitt was re-elected treasurer, and Joseph T. Kenney and Edward H. Cook were elected to fill vacancies on an otherwise unchanged board, taking the place of the late Frederick Taber and Mr. Soule. The mill is running on a curtailed basis.

A deficit of $156,085.53 after inventory reduction of $320,-000 was shown on the annual statement of the New Bedford Cotton Mills Corporation. Officers and directors were re-elected with James F. Bacon of Boston added to the board.

Net profit of $80,824.38 was realized during the year after depreciation charges of $43,765.40 by the Gosnold Mills Corporation of New Bedford. Encouraging conditions for the present were reported. Profit available for common stock was 25 cents per share after $48,000 preferred payments. Officers and directors were re-elected with John L. Emery replaced by Bryan Prescott.

Booth Manufacturing Company of New Bedford lost $17,-000 before depreciation and $59,000 after depreciation. Operations during the year were about 55 per cent of capacity. Notes payable were reduced $50,000. Officers and directors were re-elected with Edward L. Martin of Providence, replacing the late E. Russell Richardson.

In Fall River, the Shove Mills showed little change from the year previous, with $80,000 surplus. Profit and loss and reserve for depreciation was increased to $285,424. Cyrus C. Rounseville was re-elected clerk and treasurer. Shawmut Manufacturing Company reported surplus and reserves of $721,696, with Richard B. Chase re-elected treasurer. Massasoit Mfg. Company reported earned surplus of $375,175. Depreciation reserve of $303,593 was made. Troy Cotton and Woolen which is in process of liquidation also held its annual meeting. A surplus of $445,925 was shown in the annual financial statement of Firestone Cotton Mills in New Bedford and Hudson, Mass. Pilgrim Mill, Fall River, was reported running full time, although with some machinery idle, and the mill has a surplus of $60,000 against $104,000 a year ago, but with 3 per cent dividends totalling $32,835 paid during the year.

The Charlton Mill in Fall River, reported a surplus of $670,613.48, somewhat smaller than the previous year, but with $48,000 paid in dividends, $16,090 paid for new machinery, and $40,000 depreciation write-off for the year. Robert G. Emerson of the First National Bank of Boston, was elected to fill the vacancy on the board caused by the death of Earl P. Charlton, founder of the mill.

Laurel Lake Mills, Fall River, reported liabilities exceeding assets by about $5,000. Officers were re-elected, including Paul Gifford, chairman. Cornell Mills, in process of liquidation, have a surplus of $80,000 in hand, acording to report of Robert W. Zuill, treasurer. Practically everything in the mill has been sold, although machinery is not yet fully paid for.

American Printing Company in Fall River, was granted tax abatements by the city for 1929 and 1930 calling for a reduction in the Corporation's tax bills of $176,631.08 for the two years. The Charlton mill was also granted abatements totalling $58,946 for 1927 to 1929 inclusive.

The King Philip Mills Cafeteria building in Fall River is being renovated for use as a general office building for Berkshire Fine Spinning Associates, Inc. The separate offices of the King Philip and Parker units will be done away with.

In the Rhode Island district Nyanza Mills of Woonsocket reported operating loss of $104,819.04 after all charges and expenses. Net loss of $750,250 as against profit of $625,-000 the previous year was reported by Royal Weaving Company of Pawtucket. Southern New England mills totalling 4,500,000 spindles were reported to have cut stocks about two thirds during the past eight months, according to statement of some Providence interests.

Dollar sales of 1930 were 40 per cent under 1929 for the United States Bobbin and Shuttle Company, which reported a net loss of $209,000 after all charges and deductions. All directors were re-elected.

KNITTING KINKS

PRACTICAL DISCUSSIONS BY COTTON'S READERS ON VARIOUS KNITTING SUBJECTS

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Loose Rivets and "Hairy" Needles.

EDITOR COTTON:

You recently published a question from "CONTRIBUTOR NO. 4718" stating that he is having trouble with hairy needles on 70-gauge, 280-needle 3½-inch machines. Without knowing just what he means by hairy needles, I will assume that he has reference to the rivets coming loose from the needle, causing the rivet to project outside the cheek of the needle, producing a fuzzy line down the length of the hose. In his question, this man said he is running his machines 24 hours per day, six days per week.

The first thing necessary in order to prevent loose rivets is to get good 70-gauge needles made by a reputable concern. Then it must be taken into consideration that a 70-gauge needle cannot be run at the speed as a 54-gauge needle without excessive wear, due of course to the fineness of the needle compared to the 54-gauge. A speed of 190 to 210 revolutions per minute is the proper speed for the 70-gauge machine.

Assuming that the 70-gauge needle being used is the best obtainable, the cause of the loose rivets or hairy needles is probably due to wear. Machines run 24 hours a day of course will wear out three times as fast as machines run eight hours a day. This wear cannot be entirely prevented, but it can be alleviated by proper mechanical adjustment of the machines, such as keeping nicks off of the stitch cams, upper center cams, and any other adjustments which have a direct bearing upon the needles. It is the conclusion of the writer that the reason for much of the inquirer's trouble is that he is running his machines too steadily. Twenty-four hours per day for six days is too much for a 70-gauge needle, and in my opinion this is too much of a strain on them.

CONTRIBUTOR NO. 4720.

EDITOR COTTON:

I have noted the inquiry from "CONTRIBUTOR NO. 4718" who states that he is having 'trouble with hairy needles on his 70-gauge, 280-needle 3½-inch machines, Model K." He states that he has tried lubricating the yarn, direct oiling of latches, etc., without any great success. He runs 8-thread silk and 100 denier rayon with 3-thread silk mixture.

I have never heard of "hairy needles" as referred to by "CONTRIBUTOR NO. 4718," but from his explanations of his difficulty, I assume that he means split stitches in his fabric caused by the needles creating a hairy-like appearance on the outside of the hose; the fibers of the silk being split during the knitting process. On the assumption that this is what he means, I will go into detail, giving the main causes of this trouble.

The main and most general cause of split stitches is that the yarn, as it is being fed to the needles at the knitting points, is getting pinched between the latch and cheek of the needle as it is being closed on

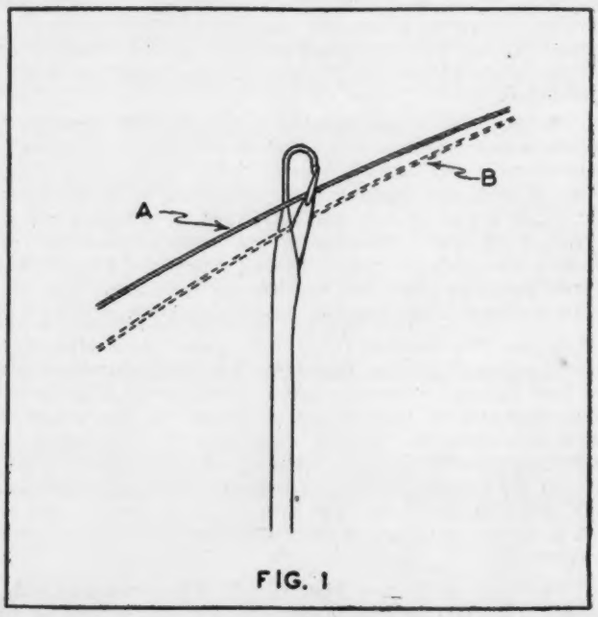
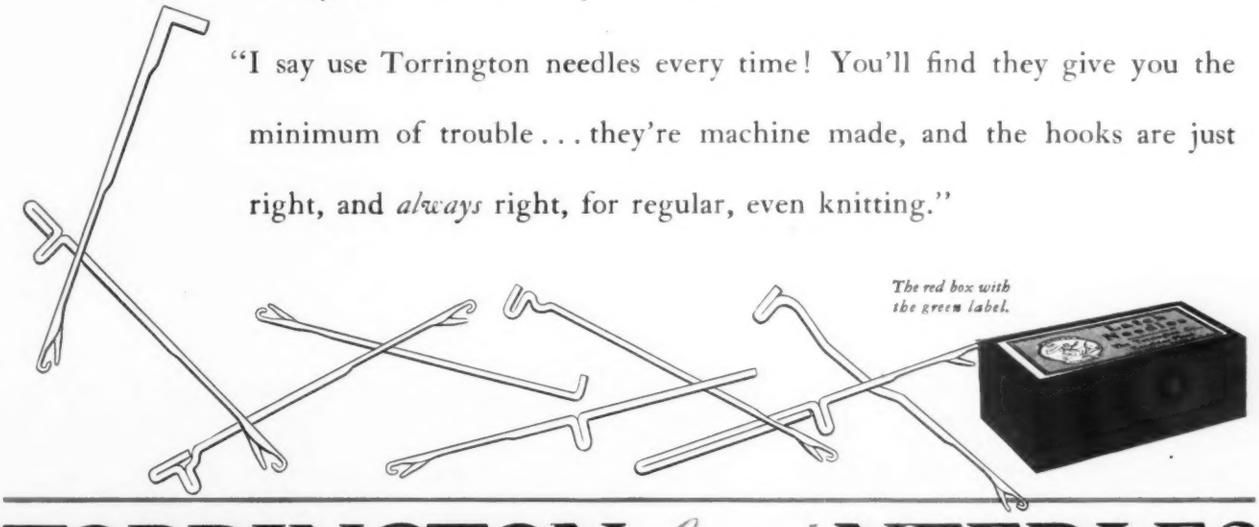


FIG. 1

The Old Knitter Talks

"SEE that tight spot? Lad, that's a hook out of line. And that's why you have to watch your needles.

"I say use Torrington needles every time! You'll find they give you the minimum of trouble . . . they're machine made, and the hooks are just right, and *always* right, for regular, even knitting."



The red box with the green label.

TORRINGTON *Latch* NEEDLES

Only a MACHINE can weigh accurately

"Perfect balance" is a convincing example of that *undeviating accuracy* for which we depend on a machine; and so is the perfect uniformity of knitting needles.

Torrington Spring Beard Needles are machine made . . . and their exactness, the perfection which persists through box after box . . . contributes vitally to the production of quality knitting.

The red box with the green label. Packed 1000 to the box. Each box contains 10 packets of 100 needles wrapped in glazed paper.

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THE TORRINGTON CO., INC., 140-144 W. 22ND ST., NEW YORK, N. Y.
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TORRINGTON
Spring Beard Needles

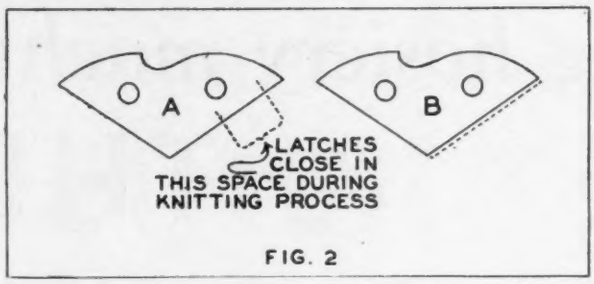


FIG. 2

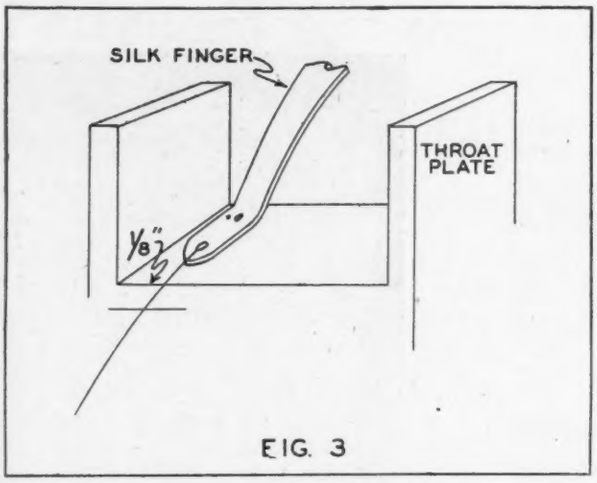


FIG. 3

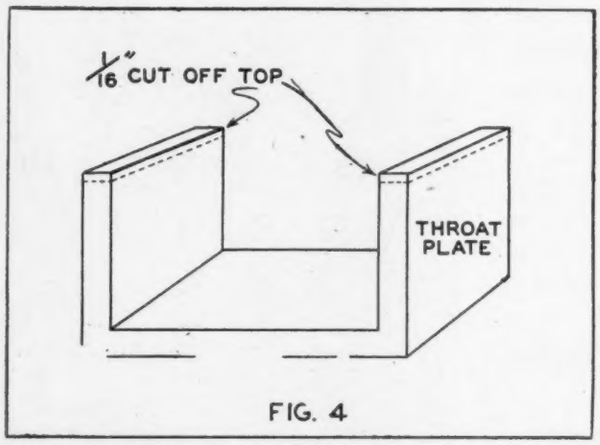


FIG. 4

its downward path of the left-hand stitch cam. This condition is illustrated in Fig. 1, the solid line showing how the yarn should go, and the dotted line showing the yarn in a position which will cause this pinching.

The illustration in Fig. 2-A shows the left-hand stitch cam, with the point indicated where the latch closes during the knitting process, and where this pinching trouble will be caused if the cam is not full enough at this point. The main thing is to keep the yarn feeding high enough at this point, where the latch is closing during the knitting process. A stitch cam which is fuller at the point as shown by the dotted line in Fig. 2-B may help. This pulls the needles downward, causing the yarn to lay a trifle higher at the point where the latch is closing.

If anyone having this trouble is knitting too tight a stitch, the same trouble results, because the tighter the stitch, the lower the cylinder, and the lower the cylinder the higher the needles rise past the throat plate, causing pinching at the stitch cams.

One should be certain that the silk finger feeding the yarn is not too long, causing the yarn to feed too close to the needles, which would also cause this trouble. The yarn should feed 1/8-inch from the left corner of the throat plate as shown in the illustration Fig. 3.

When conditions are such that the stitch cam cannot be changed, I have taken out the throat plate and taken off about 1/16-inch from the top is shown in Fig. 4. The effect of this is to raise the yarn level as it is being fed to the needles creating the same effect as the fuller stitch cam as previously explained.

The type of needles used for making this type of work has much to do with successful operation. Humidified yarn plays a very important part also, and if your inquirer is not using it I would suggest that he try it out.

This man also wanted to know "What do you consider a good average needle consumption per dozen on 70-gauge machines?"

Several years' experience with 70-gauge needle work permits me to state that four needles per dozen is a good average on this gauge. This average was secured by having the machines in first-class condition at all times, the speed not more than 210 revolutions per minute, with needle protectors on all machines. It must be considered of course that where machines are run more than eight hours per day, the needle consumption is higher, due to more wear.

CONTRIBUTOR NO. 4719.

Comes to Aid of Direct Knitters.

EDITOR COTTON:

I have read with much interest the different articles which have appeared in past issues of COTTON on backwinding and direct knitting. I thought the article in the September issue entitled, "Backwinding Versus Direct Knitting" was of unusual interest, and it is not my purpose in this article to attempt in any way to detract from the article of "CONTRIBUTOR NO. 5772," but merely to tell of my experience with backwinding and direct knitting.

I have not been in the full-fashioned game as long as some of my good friends, but during the several years that I have been in it I have given both backwinding and direct knitting a pretty fair trial. I might say here that I am using 6 and 7 thread silk.

I was getting very good results when I was backwinding, but I did not feel that just because my work was running apparently unusually well, that I should crawl in a shell and let well enough alone. I do not believe in that policy, and, furthermore, I do not believe that those adopting such a policy can survive with competition as keen as it is today. It used to be that we could struggle along just as we had done for the past ten years, but I believe those days are gone forever. We have to keep step with progress now, or else we will fall by the wayside. For this reason, when I began to hear of direct knitting I decided that I would

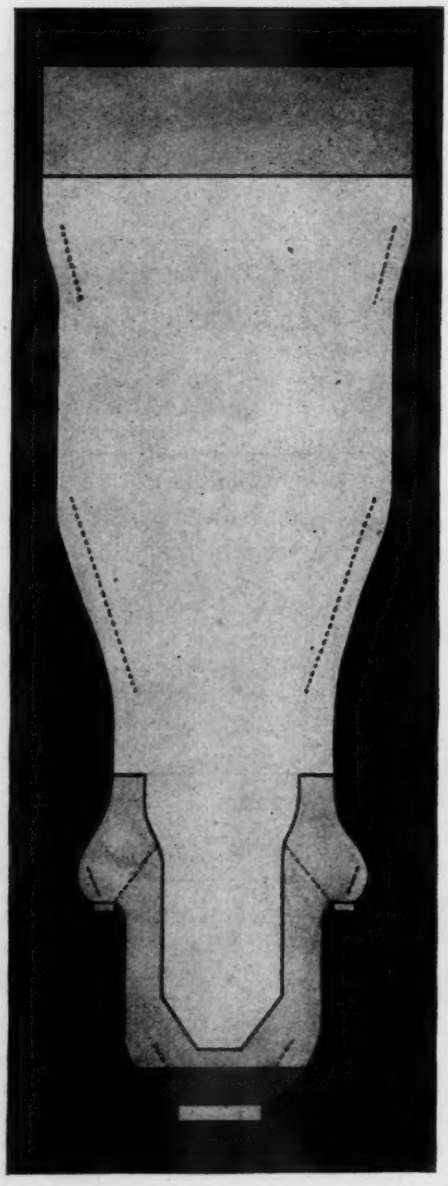
The most amazing hosiery machine

Introducing THE

TO THOSE WHO SAID "IT CAN NOT BE DONE"

REINER gives the final and irrefutable answer. Perfected in every engineering detail, proved practical by every possible shop and mill test, the new REINER 3-T SINGLE OPERATION FULL FASHIONED HOSIERY MACHINE is now demonstrating its ability to knit full fashioned hosiery complete on one machine.

Dr. Robert Reiner, with characteristic pioneering courage, has brought to a close the industry's 46 years of trial and error with his determination to place 3-T before the hosiery world. 3-T provides an entirely new method of knitting full fashioned hosiery. Leg and foot are knitted complete on one machine.



NO ANNOUNCEMENT OF EQUAL IMPORTANCE HAS APPEARED IN THE HOSIERY INDUSTRY SINCE WILLIAM COTTON REVOLUTIONIZED MANUFACTURING METHODS WITH HIS THEN NEW MACHINE IN 1868.

3-T hosiery is *not* a substitute for full fashioned hosiery. 3-T is unmistakably full fashioned hosiery of the most excellent quality. 3-T eliminates all possibility of transfer mars, all possibility of uneven dyeing due to yarn differences in leg and foot, and unmatched wales. Special 3-T features provide for improved fit and longer wear. 3-T means better hosiery produced more rapidly and at a lower cost per dozen. Further particulars on opposite page.

REINER

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REINER 3-T TOP TO TOE SINGLE OPERATION FULL-FASHIONED HOSIERY MACHINE

Perfected to knit Full-Fashioned Hosiery

Complete on one Machine

[Spectacular Production Records]

THIS amazing machine knits from 9 to 11 dozen pairs of full fashioned hose complete from top to toe every ten hours, depending on the gauge and number of courses per inch. And together with this remarkable production record are added features which improve the fit, lengthen wear and give versatility in styling.

SPECIAL FEATURES FOR FIT

The heel portion is widened by wales, not by loops, so the stocking is knit to fit, not boarded to shape. The machine is adjustable where the topping point formerly occurred to control any desired number of needles for accommodation of varying hosiery sizes. No strained wales at the instep—no loose fabric at the heel. The 3-T toe is a big improvement over older constructions and can be knit with or without the diamond shaped gussets, as desired.

SPECIAL FEATURES FOR WEAR

A row of interlocking stitches, 2 needles wide, where the heel gore formerly occurred, provides an entirely new Factor-of-Safety against Strain-in-Wear. Widening over one needle forms a ravelproof selvage which adds to the strength of the heel. Extra splicing at the toe, forming the 3-T Ringtoe construction, provides almost perfect proof against toes breaking through the fabric.

SPECIAL FEATURES FOR STYLE

Special control of the splicing thread carriers allows the knitting of French or Square heels, high or low splice, all silk heel and foot; or all silk heel with plated or split foot; or all silk foot with plated or split heel; or any combination.

Showing variations in 3-T heel styles and toe construction.

Style of heel and type of toe are independently knit.

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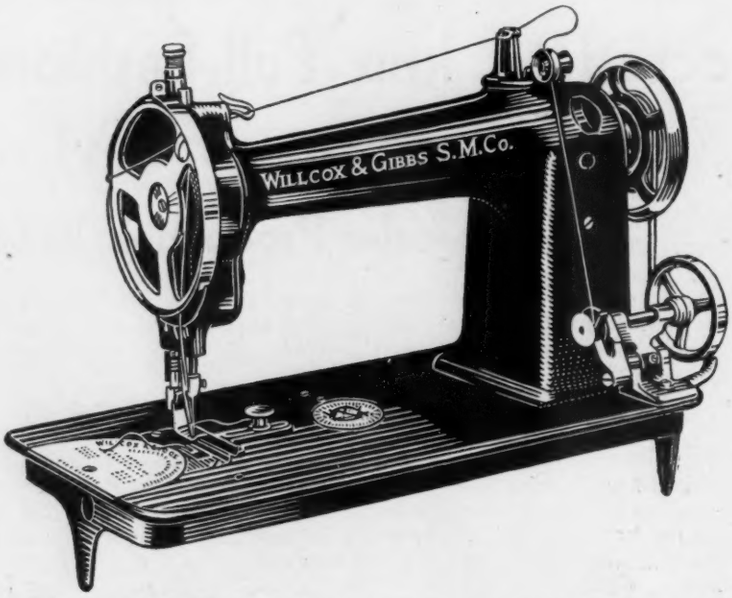
FULL FASHIONED HOSIERY MACHINES

LOCKSTITCH



"AN INSTRUMENT OF PRECISION"

Machines of Quality

WILLCOX & GIBBS SEWING MACHINE COMPANY

658 BROADWAY, NEW YORK, N. Y., U. S. A.

give it a try-out.

I was rather skeptical in the beginning, but I must confess that I have been very agreeably surprised. I have really obtained far better results than I had hoped to. I have found that in some cases I have had breaks due to dry places, but I do not believe that these have been numerous enough to offset the saving that is accrued from direct knitting.

My silk on the machine is kept in closed glass humidors, the bottoms of which are kept filled with water at all times. The silk is then passed over a felt wick that is saturated with water.

As stated before, I have been very well pleased with the results I have obtained. I have not been able to notice any perceptible difference in the finish of the goods, and the running of the work has been almost on a par with that when I was backwinding.

I surely would like to see some more discussion on this important subject. Quite a bit of discussion has already taken place concerning it, but I do not believe we can have too much.

CONTRIBUTOR NO. 4907.

"Tiger Strips" in Mercerized Cotton.

Takes issue with Harold Schroeder on a number of points in his recent article on this subject.

EDITOR COTTON:

Having read the article entitled "Tiger Stripes in Dyeing Mercerized Cotton," by Harold Schroeder, I beg to offer my opinion on some of his views expressed in that article, which was quite interesting and instructive.*

It looks to me that when Mr. Schroeder wrote that article he must have been in a very depressed state of mind induced perhaps by an extremely hard day in the dye-house. All of us dyers have experienced such days at some time or other, through no fault of our own. Things go wrong for no apparent reason, dye house helpers make mistakes, a trusted employee takes the wrong dye or leaves out some dye in weighing out for a formula, or forgets to close the steam and lets the bath boil out. Things like that happen in the best regulated dye-houses and they are surely provoking to the dyer in charge. When things like that have happened several times in the course of the day and the man in charge has to straighten out the mischief caused, at the end of the day it is no wonder that he goes home thinking the life of the dyer is very hard indeed. My advice in a case like that is that, on arriving home, he should put that record of a recent song hit entitled "Painting the Clouds With Sunshine," and listen to it until the call of "Soup's on!"

To start with the beginning of Mr. Schroeder's article, it will be apparent that it would indeed be a hard case if at the end of the day he could not look back and say "Here is the end of a perfect day," except of course when something like I mentioned occurs, and even then, using the words in the song "though things may not look bright, they'll turn out all right." If it was indeed like Mr. Schroeder would have us believe, I would have given up long ago and learned to do something less troublesome.

Now I do not desire to make it appear that I try to emulate the boasting of that dyer mentioned later in his article who claimed that he could "positively guarantee to dye without first boiling out anybody's yarn perfect without re-dyeing." For, unless Mr. Schroeder quoted him incorrectly, I do not believe there is any such animal. How can any dyer guarantee such a thing when there are a number of causes besides those mentioned in Mr. Schroeder's article which may cause uneveness in dyeing mercerized and even in unmercerized cotton, such as unripe or dead cotton mixed in, cotton from different geographical locations, cotton that in some way had been mixed by the mercerizer or in the mill and has been worked in the goods to be dyed as mercerized fabric. The illustration herewith gives a good example of this last cause of tiger stripes for which the dyer could not be blamed.

The yarn in the heels and toe is a flagrant case of badly mercerized or mixed yarn. "No dyer has yet attained such efficiency as to be able to dye level shades on such yarn," says Farber.

Mr. Schroeder said that tiger stripes may be caused by the mercerized yarn being unevenly dry when entering the dye bath and that a thorough boiling out, removing that condition, may result in eliminating them. How can that be reconciled with

*This article appeared on page 12 of the November, 1929 issue of COTTON. Clipped copies of the article will be sent to those requesting them.—The Editor.

It takes a long time to find out just how good they are!

ROYERSFORD NEEDLES

STANDARD STEEL AND DURAKROME

the fact that in hosiery, made up of silk and mercerized cotton, the hosiery is boiled off for a period of one hour or longer in soap, boil off oil or any other degumming agents? Naturally after such an operation there is no cause to fear that the mercerized cotton is partially dry and yet I happen to know that many hosiery dyers are troubled with tiger stripes in tops, heels and toes of hosiery, as Mr. Schroeder said, unless the yarn had been mixed up in the goods, if the dyer knows what he is doing and what the different chemicals are for and how to use them, there is absolutely no reason why there should be uneven dyeing even in mercerized cotton goods. When they appear on the inspection table and the work is checked up there is usually found a reason for it and the experienced dyer will usually find the remedy for it, in most cases by pointing out to a careless employee the error of neglecting to follow to the letter the orders of the man in charge.

Another point I want to comment on is the statement that some dyers can correct a shade by doctoring it up with a horn spoon. I have known many such, that were good enough some years back, but I will mention only one, who came to visit me only a short time ago. He was an old timer! He was a good dyer even when I was only an apprentice in a place where we worked together. After seeing me in action for a while he pointed to a torsion balance I was using quite frequently and said, "When I go back I am going to buy a scale like that." Surprised, I asked him how he could do without one. This is what he said, "I have weighed my dyes with my eyes so long that I seldom go wrong." He went back to his dyehouse and three weeks after wrote me a letter stating that "he could not please his employer any longer, he had left and, did I know of an opening some place for him!"

Hit-and-Miss Methods Out-of-Date.

The moral is obvious, matching colors in a hit-or-miss kind of way of course today is out of the question. Correct matches are obtained only after careful experimenting first on a small scale and then arranging the formulas in proportion to the weight of the goods to be dyed. But saying that a shade can be hit only by chance once in ten times, is showing a lot of pessimism that I do not believe Mr. Schroeder really possesses and it proves to my satisfaction that he must have been in a drab mood when he wrote that article. It would be a hard life indeed if our work was done as inefficiently as that. Also our dye houses would of necessity be made much larger or we could not keep up with the work of supplying our customers. Also it being time that most sad work comes by having to shade our dyeings, it behooves us to sample our trials correctly and with care before attempting to dye on a large scale.

And finally why worry about what may or may not take place to keep the dyer in hot water after we have succeeded in relegating the tiger stripes to the limbo?

FARBER.

Helping the Young Knitter.

EDITOR COTTON:

I have found that most knitters just starting out are in a very bewildered state of mind and in many cases remain that way for sometime. Most of them have a great desire to find out what it's all about, so I think it a mighty good idea to tell them about it as soon as possible. If they are not instructed, they are going to find out for themselves. This will generally result in a machine being put out of time due to incorrect timing of chain and drums and cylinder and dials. Then there is likely to be a lot of needles and transfer jacks crushed and jammed up.

I think instructions to knitters should be made just as simple as possible. I have found it best to teach a

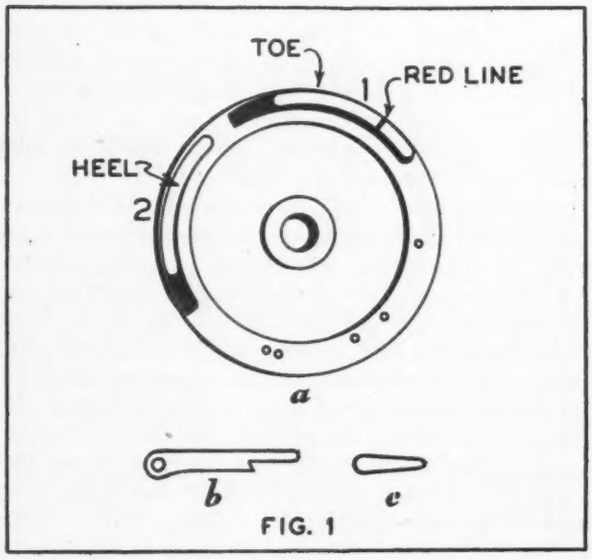


FIG. 1

beginner to set a machine just as soon as possible. Then he is not so apt to tear them up. The following applies to a Scott & Williams machine:

I have found it helpful for the beginner to paint the face of butt shipper cam, which is shown in (a) Fig. 1, with white paint. As soon as the paint has dried the machine should be racked through the toe. Just as the main pawl pushes the drum as far as it can a red line should be drawn directly under the butt shifter catch, shown in (b) Fig. 1, using this catch as a stopping guide for the drum. The knitter then has a guide that will show him whether the machine is in the heel or toe.

I would suggest that the starting indicator, shown by (c) Fig. 1, be taken off and the brass starting link moved up directly in front of the last lug link in the toe. Then the knitter knows that if he pulls the chain to where the chain pawl controller plate has passed completely over the lug behind the brass link that his chain is set for starting, and the starting indicator does not bother him by coming loose.

Of course an old knitter knows without any marks how to set his machines; however, a beginner does not, and it is very necessary that he be exact.

CONTRIBUTOR NO. 4873.

Drop Stitches on H H Machines.

Some ideas on this problem, which you may encounter one of these days in case you have not already run up against it.

EDITOR COTTON:

I am writing this letter to discuss the causes of drop stitches on H H machines. This was brought up by "CONTRIBUTOR NO. 4731" in a recent issue, who submitted the following problem, "we are having difficulty making drop stitches in the welt on our H H machines. It seems as if the latch opener doesn't work. These machines are also dropping a stitch off of the jack needles in the transfer.

Since the type of machine is not mentioned, I will give the causes of drop stitches on a spiral H H machine and a plain H H machine.

The causes of drop stitches on the *spiral* machine are as follows: (1) The cylinder is not set close enough to the dial when in the make-up. (2) The pattern jack lever strikes both the butted pattern jack as well as the plain, causing them to pass the raise cam and thereby cause the needles to pass under the stitch cam without receiving the yarn.

Drop stitches in the welt on the *plain* H H machine are caused by: (1) using crooked needles and only one yarn in the make-up. (2) having the stitch cams hollowed too much, thus destroying the proper relation between the cylinder and dial needles at the drawing point of the dial needles. (3) The dial and cylinder not set in proper relation to one another. (4) The throat plate too far away from th eneedles. (5) Loose or closed dial hooks. (6) Dial rib knitting cam lever pushed down too tight on the rib knitting cam, causing it to push out the low butt dial jacks at the end of the make-up.

Drop stitches in the transfer are caused by: (1) Tuck stitches and bad jacks. (2) Bad needles or crooked needles. (3) Loose dial driving gears and loose bearings. (4) Improper adjustment of cylinder needle transfer cam. (5) Dial or cross-barr off center. (6) If the drop stitch occurs on the sixth long butt needle, this needle should be bent to the left and a little back, because this is the first needle that taks the first dial needle stitch when transferring.

CONTRIBUTOR NO. 4747.

EDITOR COTTON:

This replies to the inquiry of "CONTRIBUTOR NO. 4731" with reference to drop stitches in the welt, and off of the jack needles in the transfer, on H H machines, which you recently published. I will give in this letter an outline of some of the causes in each case, which may be of benefit to mills having these troubles.

Taking up first drop stitches in the welt, the latch opener may not be working properly, the throat plate may be set back too far, or the throat plate may be cut away at the corners so that the yarn is too far from the needles. The hook of the needles may be turned in so that the hook misses the yarn.

Another thing is the use of beveled hook needles to improve plaiting. This has increased the drop stitching, and is overcome by setting in the throat plate. The round hook needle has given the best results.

The dial stitch cam may be coming in too late, or coming out early without making a complete revolution. The dial cap may not be dropping freely after the make-up when the machine is going into the rib. This condition is often remedied by running a reamer through the dial cap to remove slight burrs or roughness.

The dial cap may be too high when the machine goes into the make-up. This can be remedied by dial cap adjustment.

Another common cause of this trouble is the dial needles not fitting properly, and the cast-off rubbing hard against the hook.

Now, as to his problem of dropping stitches off of the jack needles in the transfer, this may result from a poor adjustment of the elevating cam with the transfer cam. The dial transfer cam should be all the way in before the needle goes through the stitch.

Or, the cam on the drum which operates the rod that controls the left auxiliary raising cam (9282) may be placed in position with screws that are not countersunk deeply enough, so that when the control rod rides over the head of the screw, it causes the cam to raise the needles above the loop, thereby casting off the stitch.

Another cause might be poorly lined dials. This is difficult to explain, as no two machines line the same. This also varies as the machine parts become worn.

One of the most common causes is worn gears that control the dial. The adjustment in the cross bar will take this out at first, but if very badly worn they should be replaced.

Then, back lash in the dial post. This is very difficult to take out, and in most cases requires either a new post or a new gear.

A sprung dial cap will cause it. This condition requires a new dial cap.

A rough groove in the dial will make the dial needle work hard, and is a common cause, especially if the machine has had a bad load-up in the dial.

Poorly matched dial needles are another cause. With this condition, the cast-off rubs on the hook.

A rare cause, which I might mention, is a file being used on old machines to smooth up the dial grooves. The grooves may be too deep, so that in the transfer the dial needle is lifted up instead of being held rigid by the dial cams.

Another possible cause is the transfer cam block becoming worn where the screw holds it to the cap. The old block made of aluminum was more likely to give this trouble than the new steel block. In a worn screw hole, the block wobbles, and does not give perfect results. Re-boring and replacing the screw with one of larger diameter will remedy this for a time.

CONTRIBUTOR NO. 4746.

EDITOR COTTON:

This replies to the questions of "CONTRIBUTOR NO. 4731", published in a recent issue, referring to cer-

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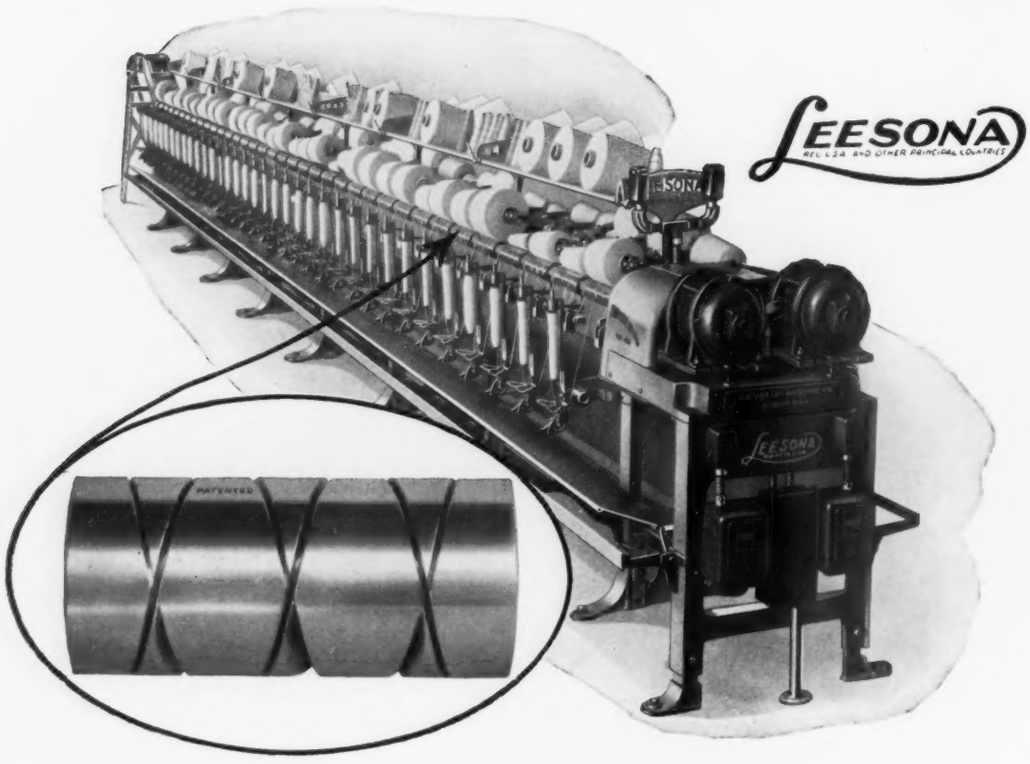

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The Rotary Guide Drum of the New Universal No. 40 Winder performs all of the functions of the reciprocating parts that are limiting factors to the speed of the ordinary winder. All cams and cam actuated thread guides have been eliminated thus making the No. 40 Machine simpler in construction and operation than any winder heretofore produced. Mounted on ball bearings, this new grooved drum permits much higher winding speeds and correspondingly greater production per spindle. A much less complicated, longer lived machine is provided at lower investment cost.

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tain difficulties in operating Model H H machines, first drop stitches in the welt, and, second, drop stitches off of the jack needles in the transfer.

According to our experience, both of these points are very hard to overcome, no matter how fine the adjustment. From practical experience we have encountered difficulty with these problems, especially on soft twisted yarn such as worsted and carded cotton. Mercerized and rayon give much better results on these machines.

There are, however, a number of adjustments that can be made that will eliminate these drop stitches to a certain extent.

First, there is the matter of improper adjustments of the latch opener. To eliminate drop stitches in the welt, the latch opener should be adjusted as close to the needles as possible. The latch opener should catch the latch of the needles as they start to come up, also it is very important that every latch operates freely. A hard working latch at this point will cause serious difficulty.

Second, a very careful check on the dial should be made to see that it is in alignment with the cylinder jack needles to eliminate drop stitches off of the jack needles in the transfer. The cylinder needles should go up as close as possible to the cast-off without hitting. If, by any chance, the cylinder needles rub against the cast-off, it is liable to bend the hook of the needle and cause trouble.

CONTRIBUTOR No. 4736.

Seaming Thread for Service Weight Hosiery.

Some discussion as to the right size, kind, etc., to use for this purpose.

EDITOR COTTON:

I note that "CONTRIBUTOR No. 4908" wishes information as to the best size and kind of seaming thread to use for seaming service weight full-fashioned hosiery. He states that he is now using 80s/3 for seaming but is having trouble with drop stitches in the seam. In my opinion, he should not have trouble with drop stitches using 80s/3 for seaming and believe that the drop stitches are due to faulty adjustment of the seaming machine and not the fault of the size thread used. While 80s/3 thread is a little heavier than I would recommend to use for seaming service weight hosiery, the seaming machine should certainly seam hosiery with it without dropping stitches.

It is quite possible that the thread that the contributor is using is twisted too hard, as sometimes a hard-twisted and smooth thread will cause the seaming machine to make drop stitches.

While I do not know what size needle is being used in the seaming machine, I know that when using 80s/3 for seaming a needle with a larger eye should be used.

For chiffon hosiery I always use a size 027 needle but for service weights I use a size 025 needle and I would recommend that the contributor look into the size of needle used as possibly that is where the trouble occurs.

I would also suggest that the contributor raise the stitch finger on a seaming machine by packing a thin piece of cardboard under the stitch finger; by doing this a larger loop is obtained for the hook to catch the needle thread.

If, however, the contributor desires a thread that I believe is a better thread to use for seaming service weight hosiery I would suggest that he try a 50s/2 thread made especially for seaming and looping purposes.

I formerly used 90s/3 thread for seaming and for several years I have been using a 50s/2 thread for service weights and have been getting much better results in general than when I used a three ply thread.

However, a 50s/2 thread will not prevent drop stitches if the seaming machine is not adjusted properly; so, therefore, I would say that the contributor should check the seaming machine and be positive that it is not the fault of adjustment before deciding that a change of the size thread is necessary.

C. H. BAXTER.

Methods Cleaning Monel Metal Machines.

The ideas of several men on this subject in response to a recently published inquiry.

EDITOR COTTON:

In a recent number one of your contributors asked for methods of cleaning Monel metal dye machines after dyeing developed black. He also asked if the black injures the metal in any way.

In reply I would say that Monel metal machines are easier to clean than any other kind of machine—metal or wood. Black dye is no exception. Dyes do not stick to Monel metal, but in some cases it will tarnish when some chemicals are used; but in that case, there is no danger of damage, as the original color will return after a lot or two have been dyed, and no change in shade nor spots have ever been caused by the tarnished metal.

However, even Monel metal must be cleaned occasionally, and we clean the Monel metal machines in our plant at least once a day, and sometimes more often. By the end of the day, a lot of grease usually accumulates around the side at the top of the machine, and, if not cleaned, the accumulation may become large enough to drop off and get mixed up with the goods, and very unpleasant results will be the outcome.

Here is how we do it: the machine is filled with hot water, and a scoop or two of soda ash is added, depending on the size of the machine, with enough soap to make a good lather. We let the machine run for a few minutes, and then scrub it with a stiff broom to remove all grease that may adhere to the sides and drum, and also remove any lint that may stick out in the perforations of the drum. After scrubbing, the soap-sud is boiled and made to run over the top of the vat for a little time to carry all grease and dirt over the top. When most of the sud has gone over, the drum, vat, and gears are cleaned by a good washing, with hot water if available; and then the machine is ready for dyeing any desired shade.

Monel metal, while it is more durable than most materials used for making dyeing vats, will in time also wear out. If used in dyeing developed black the

wearing will be much faster. The fumes and acids produced in the diazotizing and developing baths will corrode the surface of the metal and the inside of the machine will get rough in a short time. A machine with a rough surface is mostly responsible for those chafed marks that so often mar the appearance of dyed silk hosiery, and the damage is permanent.

We have found that diazotizing and developing of black and colors should always be done in wooden tubs and wooden machines.

CONTRIBUTOR No. 4906.

Answers to Question on Wrap Stitches.

EDITOR COTTON:

"I am having trouble with my wrap stitches." How often I have heard different knitters make that statement. It seems that "CONTRIBUTOR No. 4841", judging from what he has to say in the October issue, is experiencing this trouble. He says, "We are making fancy rayon hose, using 200 denier rayon with 80s/2 Emmunize yarn, and are having quite a bit of trouble with our wrap stitches. The trouble seems to be in the yarn changes. We experience cut threads in many instances."

Well, I can certainly extend our friend a lot of sympathy, even if I fail to offer the proper remedy, for I have stayed up at night trying to overcome this evil. I believe that in ninety cases out of a hundred this trouble is not caused by the machine, but caused by the yarn. From my own experience, I know that in a large number of cases I have experienced extreme difficulty with wrap stitches, and that by making a change in yarn I have overcome this difficulty entirely. My advice to anyone having this trouble would be to try a little better grade of yarn for this stitch.

I would surely enjoy seeing more discussion along this line.

CONTRIBUTOR No. 4898.

EDITOR COTTON:

In the October issue "CONTRIBUTOR No. 4841" states that he is having considerable trouble with wrap stitches. He says that the trouble seems to be in the yarn changes, and that he is experiencing cut threads in many instances. He is using 200 denier rayon with 80s/2 Emmunize yarn to make men's fancy rayon hose.

I have experienced great difficulty along this line, but, after much experimenting, I believe that I have at last hit upon the correct remedy. Now I take the cone of yarn just as it is bought and wind the yarn off the cone onto a bobbin. I wind the bobbin just about half full. I then take this and soak it in kerosene for several hours to soften the yarn. I have found this to be a big help. Even if the yarn were not soaked in kerosene, I believe that it would be possible to make a much better wrap stitch by winding the yarn off the cone onto the bobbin. The yarn will unwind much better from a bobbin than it will from the cone.

I would certainly like for "CONTRIBUTOR No. 4841" to try the suggestions I have offered, and then let us know whether or not they helped him any.

CONTRIBUTOR No. 4901.

EDITOR COTTON:

I notice in the October issue that "CONTRIBUTOR No. 4841" is having quite a bit of trouble with wrap stitches. Well, to say the least, its some relief to know that lightning does not always strike in the same place, for I have surely had my share of this trouble. There are an unusually large number of different things that might cause this trouble. Some of the most common I have found have been:

Difference between going off cam and cam bringing out finger on the pattern drum will cause this trouble. Another cause is the cutter block being out of time with the knife. Another is that the fabric may be knit too tight. Still another is the latch ring may be too low, causing the yarn to go too far down in the needle. This will cause the latch to cut it.

If "CONTRIBUTOR No. 4841" will look into some of these causes for this defect, I believe he will go a long ways toward overcoming it. I surely would like to see some discussion in COTTON from him as to the success he has had in dealing with this problem. It's one that has caused a lot of us to lose many good hours of sleep.

CONTRIBUTOR No. 4899.

Among the Knitting Mills

MARION KNITTING MILLS, INC., Marion, N. C., have started excavation work for an addition to their plant. They will re-arrange the equipment in order to provide for an increased production. The new addition will be of brick construction and two stories in height. This company has a production of 1,000 dozen pairs of half-hose daily.

Byrum Hosiery Mills, High Point, N. C., one of the new establishments of that city, has 50 300-needle knitting machines producing womens' pure thread silk hosiery. The plant also has dyeing and finishing equipment.

Bryan Hoiery Mills, Inc., Chattanooga, Tenn., has purchased four additional 42-gauge, 24-section, full-fashioned hosiery knitting machines from the Textile Machine Works, Reading, Pa. It is planned to put these machines in operation immediately.

The new $1,000,000 Corinth (Miss.) Hosiery Mill was scheduled to be opened March 2. It was reported that 600 men and women will be employed.

Pannill Knitting Co., Martinsville, Va., has let contract to Finley & McCoy for three-story addition to take care of increasing business.

Camilla Hosiery Mills, Camilla, Ga., have begun operations, making infants and childrens fancy hosiery. They have purchased new equipment, including 30 48-gauge knitting machines.

The Pilot Full-Fashioned Hosiery Mill, Hickory, N. C., will enlarge their plant. Work on the two new brick additions will begin at once. The expansion will include the installation of 20 new full-fashioned machines.

Pacolet Knitting Co., Tryon, N. C., have formally taken over the Wear Knitting Co. The plant has 245 knitting machines.

R. S. Strickland has purchased the Hartford Hosiery Mills, Nashville, Tenn., and will operate them as the Strickland Hosiery Mills. This mill operates 130 knitting machines.

Keystone Hosiery Co., Burlington, N. C., have plans completed for moving their plant to Asheboro, N. C., where they will occupy the plant of the Asheboro Chair Co.

The KNIT GOODS MARKETS

CONTINUED fair demand for women's silk full-fashioned hosiery is indicated in the fact that numbers of firmly established mills are maintaining an approximately normal stage of operation. This might be said to be offset by the number of plants either idle or on part time operation. But it was evidenced on various occasions during February that, as a buyer for a leading large retail store expressed it, "The mills from which we buy are busy."

The buyer in question is known to the trade as one of the more discriminating of his profession, besides having the faculty of being able to get pretty nearly what he wants in the way of standard goods of modern construction at around minimum wholesale price. But apparently he lets the mills supplying him extract a profit from the business, for most of them are known to be going forward, while in a class which this particular buyer does not smile upon, things do not appear so rosy, judging from the scattered idle factories and some that are regarded in the trade as occupying doubtful ground.

Some idea of the extent to which potential production of silk full-fashioned hosiery has been carried and how quickly a surplus of goods can be provided is indicated in the competitive prices for staple lines while around 100 mills are reported operating only against orders. Some few of these establishments have been running at a rate implying a continuous flow of orders; while another few are idle for so much of the time that it would appear they are little better off with respect to orders than those that have none. And yet there is hosiery aplenty—so much of it, with apologies to the industry at large for some of the stuff exploited as hosiery—that certain numbers are being sold in retail stores at even less than average cost of production.

A Philadelphia distributor to retailers several weeks ago was advertising for house-to-house canvassers to sell silk full-fashioned stockings, described as perfects, at 35 cents a pair—and the advertisement promised canvassers a "liberal commission". While comment in this case would seem uncalled for, it is not inappropriate to refer to another Philadelphia concern, recently established, which employs canvassers and sells to consumers from its office. The parties in this case say they found it so difficult to sell hosiery at more than one dollar a pair that they discontinued offering a standard line at $1.25, although some large retail stores sell it regularly for $1.35. So they cut the price of an honest $1.25 stocking to $1 and have increased their sales tremendously. Their success with this number may be surmised when, according to a statement of one of the parties operating this enterprise, they had less than one-half of one per cent returns.

It has been predicted by trade observers in recent months that retail stores soon will have to again meet competition offered by large employers of canvassers. In the eagerness of many mills for business and willing to supply really meritorious stockings, it is pointed out, it is possible for quantity buyers to acquire goods as advantageously as can some of the leading department stores; that with a plentitude of good stockings and more available at a signal from buyers, and many thousands of men and women idle involuntarily and striving to earn, there are possibilities in the business of distribution through organizations of house drummers that did not exist when five or six years ago the cry of retailers against bell pushers was heard in every city, and communities were asking for legislation to so tax sales through canvassers as to virtually make such business prohibitive.

Few Novelties to Annoy Manufacturers.

Trade commentators look upon the absence of any great number of novelties in hosiery lines as fortunate for manufacturers. Notwithstanding not many important manufacturers have departed from the middle of the road as to staples, it has been a common explanation of buyers placing unusually light orders that they could not determine what they would need in the way of colors and type of silk as gauged by turns per inch in the twist. Such specious pretexts availed for a time only because of a common belief among buyers that mills would again hold the bag. Meanwhile, demand approached a more nearly normal stage, in preparation for the pre-Easter selling period. The time had come when buyers had to determine questions of color and twist for themselves.

Some very large orders for women's silk stockings were placed in January and February, and all through last month a half dozen mills which might be mentioned were in operation full time and over and still are engaged in rushing the orders to completion. One of these busy mills, a Reading, Pa., establishment of moderate size, has been buying hosiery in the gray from two or three mills variously located, one in Philadelphia was getting a share of this overflow business, which developed among large distributors to consumers who were less interested in the matter of dull silk than in tram with the sheen that for so long was a badge of aristocracy in hosiery.

Makes Success of Crepe Hosiery.

The Harron Hosiery Mills, Philadelphia, early last year introduced crepe silk stockings to sell for $1.95 a pair. In a recent letter to its trade, Joseph A. Harron, general manager of the company, states during 1930 the plant was run 16 hours a day and at present is on full time, with dealers sending repeat orders. Several reasons might be assigned for the success of this mill with $1.95 stockings at a time when a dollar represents magic in hosiery in price.

When Mr. Harron began running a factory some

years ago he had back of him the experience of an old-time salesman and a host of acquaintances in the retail trade. His aim was a product that would fetch repeat orders; he never has sought to compete in price. Comparatively few manufacturers are producing crepe hosiery of the construction described in the Harron letter to his customers. His formula is two single ends of silk twisted 70 turns to the right, two single ends twisted 70 turns to the left and the two ends then given four turns to the right. As this crepe stocking is sold to retailers for $14.50 a dozen they are pushing it strong as a $1.95 stocking. Harron provides a better than average arbitrary mark-up.

Between the grenine and crepe twists for preparing the silk there doubtless would be a more profitable field for dull silk stockings if "dull" had not lost much of its glamour by reason of a super-abundance of subdued luster hose coming on the market, some of it to sell for a dollar a pair and less. Some of the chemically treated silk for obtaining dullness is detected as such by a peculiar odor, according to buyers trading in only grenine or crepe. While some interests have much confidence in a long life for both, there is a well defined drift of sentiment favoring a return to silk with the sheen as a staple of the silk itself.

Stores Try Featuring High Prices.

Some observant buyers and merchandise heads profess to believe that, while demand for well-made dollar stockings will increase, it would be expedient to give more attention to higher-price goods than they have been receiving. It is noted that one of the exclusive specialty shops for women which for two years and more featured a seven-thread silk stocking with cotton top and soles as a leader at a dollar a pair and made it a big success, now is exploiting a branded number of heavy service weight at $1.85 a pair, or three pairs for $5. This identical stocking in outsize sells for $2.

Another leading shop, catering to only the better trade as gauged by purchasing power, features 45-gauge, 51- and 57-gauge at $1.95 to $3.95 a pair, these prices representing a decline of a dollar a pair from the store's prices for the identical lines from summer of 1930. Big stores playing up the higher-price lines lately seem to have neglected offerings of 48-gauge. It is predicted among manufacturers that when the Dr. George W. Taylor survey of hosiery stocks as of January 1 has been completed it will show a larger ratio of 48-gauge in stock than of any other.

Of course there are various types of 48-gauge hosiery on the market. It has been quoted recently as low as $8 a dozen, for standard construction in luster and in dull silk, dip-dyed. In the opinion of most manufacturers consulted on the subject, 48-gauge hosiery should be knitted ingrain. In any event, however, $8 a dozen for 48-gauge silk stockings is a price that is construed in the trade as meaning that for the present there can be no profitable market for gauge between 45 and 51. A line of 48 dull luster was being featured a few weeks ago at $1.35 a pair. It carried all the talking points—narrow French heel, cradle foot and toe guard. The extent to which the price of $1.35 for a stocking of this description would be out of line, normally, is the more readily appreciated by comparison with an eight-thread dull luster silk 42-gauge for a dollar, or three pairs for $2.75. This stocking, seen quite recently on sale in a store whose rating in the trade is regarded a guarantee of value, was made with re-inforced narrow French heel and cradle sole.

Interest in Belated Hosiery Stock Survey.

No one suspects retailers of passing to the consumer the benefit of distress prices paid to mills. The prices mentioned as illustrating conditions in certain corners of the hosiery markets are impressive of the low level of values forced upon manufacturers, in the face of 100 mills operating only against orders until, at any rate, a few weeks ago. Other figures outstanding for their impressiveness are 85 cents a pair for standard construction 45-gauge and $1.15 for fine gauge grenadine.

It became apparent a few weeks ago that there was much speculation in the trade over the showing of hosiery stocks by mills, to be made in the survey which was undertaken by Dr. Taylor of the research department of the University of Pennsylvania, and it has been intimated that some of the low offerings by mills could be attributed to fear of a suspicion entertained by manufacturers that the survey would disclose larger holdings of certain few gauges of stockings than were supposed to exist. This, it is believed, was the first census of hosiery by gauge ever undertaken. Dr. Taylor had expected it would be completed by early February. A week or two ago he thought his report would be ready by the middle of March. He was delayed, he explained, by the tardiness of some of the larger mills in transmitting their figures to him. But, he added, all of the big mills came in and over 70 per cent of the establishments will be represented in his report, which probably will be a more complete picture than that presented in the monthly reports of the Department of Commerce.

Interest in the Taylor survey became the keener after the appearance of the Department of Commerce report of statistics supplied by manufacturers for December, which showed that at the end of the month the reporting full-fashioned manufacturers had in the stock, finished and in the gray, 3,281,433 dozens, all classes, in contrast with 2,925,076 dozens at the end of December, 1929. Unfilled orders for full-fashioned at the end of last December were reported at 845,051 dozens, comparing with 1,992,950 dozens at the corresponding date of 1929. The full-fashioned group therefore came upon 1931 with heavier stocks and fewer unfilled orders. The seamless mills reporting had less stock, by over 28 per cent, and 44 per cent less unfilled orders. Seamless production in December declined 20 per cent from the corresponding month of 1929, and full-fashioned was in five per cent less output.

There is noted a slight increase in output of full-fashioned silk and cotton in combination, in December, as compared with November, and virtually none a year ago. The William Brown Co., Philadelphia, Granite brand hosiery, for some time has been knitting full-fashioned cotton, taken mostly by institutions, which, it is thought, also are taking silk and cotton in combination or substituting it. Production of

full-fashioned cotton stockings for women in December was reported at but 987 dozens, in contrast with 19,206 dozens in the corresponding month of 1929. There is indicated a sharp drop in output of full-fashioned silk-rayon combination from a year ago, amounting to around 50 per cent.

Another Try with Net Hosiery.

The trade would be much interested in an approximately accurate report of the production of women's mesh hosiery, a novelty of previous years which is making its re-appearance after scoring disappointment in each of several seasons. Buyers for leading retail stores are talking net hosiery in a variety of mesh formation. The range embraces rectangular, circular and the "cute petite little mesh," as described by some shoppers, as the present apparently most exploited types. It is stated by an authority that less than 20 full-fashioned mills are equipped to knit mesh hosiery, so that in the event it becomes popular there is possibility of sharp competition among buyers for deliveries of stockings in the retail price bracket from $1.50 to $1.95 a pair. There remains some seamless net equipment in place, and sales of nets of this construction as a dollar number already are being promoted.

Makers of full-fashioned net stockings are understood to be taking only small chance with them, fearing they would become commonplace with any widespread sale of the seamless. Buyers also are said to be pursuing a most conservative policy. So, while eventually there might develop considerable interest in net hosiery, it is not improbable that, with buyers deferring commitments and mills making only to order, not a great deal of it would be available.

Fancy Half-Hose Situation Well Balanced.

A comparatively well-balanced situation exists in the markets for men's fancy half-hose. The tendency among manufacturers has for several months been in the direction of better grades and more attractive goods, until some have put prices at a level where buyers themselves are surprised. What some buyers regard the more revolutionary price descent in half-hose is instanced in a line from a Chattanooga mill. It is knitted on 240-needle machines, of pure thread silk re-inforced with rayon, and goes to the trade at $2.15 a dozen. A more striking example of reduction in values of high grade socks for men is a number from the Champion Knitting Mills, Chattanooga, Tenn., for which the mill was getting $4 a dozen around four months ago, and which jobbers now are selling for $3.75. Some regard the stocking the equivalent in value of a somewhat celebrated dollar sock from a mill in Reading several years ago. A half-hose number embodying attractive design and character of fabric, for a half dollar a pair, is of silk, rayon and Celanese. A price to retailers is $2.75 a dozen. Among the better selling popular-price half-hose numbers are fancies at $2.15 to retailers and all-rayon for $2.

Commenting on the new values for hosiery, John H. Schofield, the Schofield Shelmire Co., Philadelphia jobbers, said it looks to him as though prices could not recede on current raw material values unless manufacturers handed the cost of knitting, boarding, dyeing, etc., to distributors as a donation for relieving mills of their goods. Mr. Schofield exhibited a pure worsted zephyr golf stocking which retailers with a not too elastic conscience are passing to consumers for a dollar a pair.

According to the reports of some leading retailers, use of full-fashioned half-hose is declining almost as fast as seamless hose for women. This is borne out in large extent by statements of manufacturers.

Children's Hose Group Has Few Troubles.

Manufacturers of children's hosiery and infants' socks appear to have matters pertaining to their markets pretty well in hand. Their troubles, compared with those of mills in other groups, are admittedly insignificant. Prices are fairly stable and, while sports effects will continue the vogue for juveniles, there is believed to be less diversity of design and variety of fabric. Most manufacturers had a satisfactory season in 1930 and are right well situated as to orders for current shipment. What is regarded a clumsy form of deception was uncovered somewhat recently in the interests of a group of manufacturers of infants' socks.

During an investigation as to the source of a line of socks quoted lower than the market as accepted in the trade generally, it was found the socks came from a mill which did not have equipment for making the type of sock in question. Pushing the probe further, it is related, a manufacturer using that type of machine had sold as waste a quantity of tops, which found their way to a mill where they were used on socks of this latter mill's production. Had it quoted prices conforming to those of the mill whose tops it appropriated, the incident might have passed as a "secret of the hosiery trade"—there are said to be not many.

The three mills manufacturing infants' socks finished with Fidelity machine tops will shortly offer a new line of wool socks for the fall season. It is understood the patterns will be unique and likely to receive much attention from buyers. The mills, in Reading, Pa., and Fond du Lac and Waupun, Wis., operate as Infants Socks, Inc.

Fall Underwear's Latest Opening.

Never were fall underwear lines opened so late as this year, for the 1931-2 season. There have been times when buyers did little or no contracting before February, but that was because of their refusal to operate earlier. They were not ready this year to hand manufacturers orders before the middle of February, and when samples first were shown it was common prediction that buyers would not be out in force before March. If it be found that this year's opening was none too late, say several leading manufacturers, it seems not unlikely that the formality will be staged next year at no earlier date than this year.

As in several recent years, the P. H. Hanes Co. "opened the opening," in other words, was the first to come on the market with fall lines. Most of the big factors held off for some days, as if preferring a March 1 start of fall buying by jobbers. So, for some days prices, with the exception of the Hanes mill's list, remained a closed book, manufacturers being unusual-

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ly secretive with their new lists. When later the rank and file of mills got into line with quotations it was made apparent, in the apathy of buyers, that manufacturers made no mistake in not trying to force the issue. They had made for thinner profits in adapting their prices to the lower values for cotton, making comparison with the opening for the current winter. Yet buyers appeared to feel prices were not low enough. S. D. Bausher, just before sailing early in February for a Caribbean cruise, said he would not feel hurt if the opening did not come off before April. He is the treasurer of the Glorie Underwear Mill at Eufaula, Ala., removed several years ago from Reading.

Developments since the opening last month are held by some few factors as indicating Mr. Bausher at the time he mentioned April felt that would be the beginning of jobbers operating in a general way in the heavy weight markets, notwithstanding conditions last month seemed ripe for a coming together of seller and buyer. Cotton, it is pointed out, has for some time been steady, fluctuations being within a narrower range than for some time. Carded yarns are lower, relatively, than when cotton was at its lowest for the present cotton year, and it would appear the only reason jobbers might assign for postponing in an admittedly late market is the determination to again have mills shoulder all of the responsibility for deliveries such as must be provided for if retailers are to be kept on jobbers' books as customers.

Accepting the prices which came out at the opening as representative of the market, carded union suits are lower by around an average of 14 cents a pound, on the basis of 12-, 14- and 16-pound suits. Fourteen cents less per pound for underwear compares with approximately five cents a pound less for the raw cotton. Yet buyers appear to feel they would not be safe in contracting on current quotations. So manufacturers either must accumulate stock or padlock mills and add to unemployment while merchants, who depend upon employment for their existence, hold up traffic.

Late Trading in Knit Outerwear.

Production statistics for December last are fully in line with the representation of numbers of mills that it was necessary to curtail output of light weights, all classes, lest a surplus be accumulated, as buyers were withholding orders until dangerously late. Some activity has since developed, and the light weight season now is in a relatively better position than are heavies. Retailers other than the men's stores holding a large part of the better trade are reported buying in almost normal fashion, considering the great variety of fabrics and styles. Descending prices have acted as a deterrent to retailer purchases, but jobbers say there has been little confusion on this score, that dealers are finding it necessary to continually rebuild their stocks. Already there is more consumer buying of summer weights than ordinarily, which some attribute to economical reasons, the light weight suits costing wearers so much less than heavies. It is figured that the practice of economy in underwear weights during the depression and widespread unemployment augurs for less business in heavies next winter, and a proportionate increase in sales of summer weights.

Orders for sweaters and bathing suits are reaching manufacturers very late. There has been booked fair business in sweaters for spring, men's mostly in solid colors and boys' tending to small patterns, with solid colors being in good call. The fact is, all hands —manufacturer, jobber and retailer—are striving to avoid having novelty effects in their lines, for they are certain to have to make up some stock goods, and feel safer with black, navy, tan and maroon and the usual variety of solid colors. At this range, it is stated, there appears little prospect of re-instatement of shaker knit coats. For those who want sweaters for heavy outdoor wear the leather and sheepskin coats seem to have filled the bill this winter, and their producers claim to feel assured of their popularity during the next heavy-weight season.

Some few manufacturers of sweaters and bathing suits have been maintaining "closed house", declining to operate plants while rivals were busily engaged in a price reduction campaign. Both lines have been hard hit by price cutting, jobbers becoming more wary the further reductions were carried. Fair business has been taken by a comparatively few bathing suit mills reputed for style and character of goods. Another group, manufacturing sub-standard garments, also is right well situated as to orders. But there is an in-between element among manufacturers that face a late and snappy season so short that it will be difficult to get off normal production. For the present, merchants are not preparing to carry stocks beyond approximately assured needs as indicated by the operations of their customers last year.

Slack conditions in the knitted outerwear trades are reflected in a stagnant market for worsted yarns, in which there have been an unusual number of price revisions, all downward, in a given time.

Textile Oil Phraseology

By Herbert C. Roberts

(Continued from page 419)

evaluate it in terms of another oil, the first thing to do is to find out whether it is a saponifiable oil or an unsaponifiable oil or a mixture of both. When this is determined, the next thing is to find the physical and chemical properties. These include flash and fire, cold test, viscosity, specific gravity, saponification number, iodine value, etc.

In computing the value of a self-emulsifying oil, the first thing is to find out whether it is a mixture of saponifiable and unsaponifiable oils. When this is done the amount of water is determined. The amount of water is frequently omitted in testing a non-emulsifying oil as an oil that does not mix with water, seldom has any water in it, while nearly all oils that readily mix with water contain some water. The exception to this rule is found in some of the recently discovered emulsifying bases such as oils that have been saponified with triethanolamine and some of the hydrogenated hydro-carbons. The usual self-emulsifying oils contain a soap or sulphonated oil base and all contain some water.

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After the water has been found the amount of fatty matter combined with alkali is found and it is considered to be the amount of fat converted into soap. The neutral fat, that is to say, the uncombined fat must be determined. It must also be examined to find out how much sulphonated oil is present. An ash determination is also run to find if there is an excess of salt or foreign matter left in the product.

In order to identify the individual oils used to make up a self-emulsifying oil, the same physical and chemical tests are run on the sample as are run on a non-emulsifying oil. However, the treatment these oils receive in their preparation to some measure, alters these physical and chemical properties of the original oil.

Much confusion exists in the minds of textile workers and writers in regard to the use of the terms "emulsify" and "saponify." One often reads in articles referring to the removal of oils from textile materials, the expression "saponifies out": what is really meant is that the oil is removed from the goods. Perhaps it is trying to make a mountain out of a mole hill to find fault with the statement, because the ultimate object is to remove the oil from the goods and to many just how it is done is a matter of little consequence. In the majority of cases the oil is removed by emulsification and not saponification even though the oil present in the goods is a saponifiable oil. If the oil was removed from the goods by saponification, much more alkali and a much more concentrated solution of alkali, and in many cases even caustic soda rather than soda-ash, would have to be used in order to convert the saponifiable oil into a soap and have this soap or saponified product soluble in water and be washed out of the goods. The only possible exception to this condition is where a free fatty acid is used on the goods. Fatty acids can be saponified with soda-ash solutions and thus be converted into a soap and removed by a saponification process.

Unless the oil present in the goods can be converted into a soap by very dilute solutions of alkali, say a half-percent solution, it is not correct to say that the oil is "saponified out" of the goods. It is removed by emulsification, that is to say, it is mixed with a soap and alkali solution and then an emulsion is made by allowing the soap and soda solution to have more affinity for the oil than the material upon which the oil has been applied has for the oil. This statement holds true for saponifiable oils as well as mineral oils and other unsaponifiable oils. It is easier to emulsify a saponifiable oil than it is to emulsify an unsaponifiable oil but the principle involved in the removal of any oil from textile material remains the same.

Another confusing condition arises in speaking of soluble oils and sulphonated oils. We have stated in this article that the expressions "soluble oils" and "self-emulsifying" oils were frequently used interchangeably. In this connection the terms "sulphonated oil" and a "soluble oil" are used synonymously by reason of long usage and misinformation. Originally a soluble oil was prepared for the textile trade by making a castor oil soap, that is to say, mixing castor oil and caustic potash solution in the correct amount to make a neutral product. This made a clear solution when mixed with water. Then as knowledge of the art of sulphonating increased it was possible to make a sulphonated oil that could be mixed with water to make a clear solution and while a high quality sulphonated oil and an oil made by mixing castor oil and caustic together have many of the same properties in common, they have others that are widely different; for example, their reaction in the presence of hard water. The sulphonated oils are more stable and do not separate or form lime soaps as readily as soluble oils made up from a castor oil potash soap.

Slashing-Weaving Discussion at Montgomery.

(Continued from page 423)

able to furnish the particular kind of discs that would be the best for the purpose. In other words, he said, a hard rubber disc on a cold water job will not give the same results as a soft rubber disc on the same job; and he urged that in addition to furnishing the catalogue number in ordering, that the mechanic specify as well the purpose for which the valve is desired and indicate the kind of disc desired.

It was brought out that, "you can re-face the seat on a renewable valve just the same as on metal. It pays to re-seat and re-grind the valves. You will have some wire drawing on composition, but where you have a re-seating tool you can take the groove out of the seat and put in a new disc."

V-Belt Drives in the Mill.

Mr. Taylor next submitted the second question which asked for experience with the V-belt type of drive on various applications in the mill. A section of the report of the September 1930 meeting of the Textile Operating Executives of Georgia, at which this subject was discussed, was submitted to start the discussion. Experience of from one to five years, with the V-belt drive on different applications from three-quarter to seventy-five horsepower were reported at this meeting.

The question also included an inquiry as to whether in changing one of the ropes in the drive which had become slack, whether one belt was replaced or whether the entire drive was replaced. According to the report read at the Georgia meeting, it seemed to be the general practice to put on a whole new drive gauging the used ones for later use. One man did indicate, according to the report, that he replaces only the individual ropes, but no one present at either the Georgia meeting or the Montgomery meeting agreed with this.

Mr. Norman stated that they have used the V-belt drive up to 35-horsepower and that they think very well of it as a drive; they are replacing the chains, as they wear out, with the new type of drive. He explained that when one of the belts in a drive wears out, they check the tension on the belt by means of a gauge on which the belts are slipped over a couple of studs. A complete new drive is put on to replace the one in which a belt has worn out, and the used belts are retained for use with others about the

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same age on other applications.

Mr. Agnew asked if there was any slippage with the V-belt drive, and Mr. Norman replied that he had no difficulty along this line. He added that, "our spinning frames have 5-inch cylinders, and before we put on the V-belt, the chain drive was so positive that we used to keep a couple of men busy taking cylinders out and taking them to the shop, but since we have been using the V-belt on this drive we have had no trouble of this kind." Mr. Agnew asked what those present would recommend on a 50-horsepower drive. "If nothing else entered into it except the cost of the drive, I would say use the V-belt," said Robert B. Horsley, superintendent, West Boylston Manufacturing Company.

Mr. Edwards of Shawmut asked, with a 50-horsepower drive running 900 revolutions per minute, what would be the proper distance from the line shaft to the motor. Mr. Norman and others pointed out in this connection that the manufacturers of the drives had figured out certain ratios, in accordance with the size of the pulleys, speed of driven pulley, etc., and that it is important that a mill abide by the recommendations made in these specifications. Otherwise, as was pointed out by Mr. Vincent, there is a likelihood of running into a special length of belt which would not be practical.

Mr. Cottle of the Tallassee Mills, reported that they are using quite a bunch of the V-belt drives, the latest application being on a 75-horsepower air compressor. He stated that they are using the drive on every possible application and are very well pleased with it.

Mr. Agnew asked as to whether anyone had tried the V-belt type of drive on cards replacing the various ropes used. Mr. Horsely reported that he had seen recently a card room of 600 cards with the cards equipped with this type of drive and that it appeared to be giving full satisfaction. Mr. Jones stated that he had used the drive on cards with good success. Mr. Agnew stated that he is at the present time changing over his cards to this type of drive where applicable.

Another man asked the question as to whether a larger number of small belts or smaller number of larger belts is preferable. Mr. Norman replied that, "I am governed by the recommendations of the manufacturer. If the diameter of the small shaft is within certain limits they will get down to a small belt because of its flexibility, but I have found it advisable to accept their recommendations on this point."

Roscoe Roberts asked as to experience with the type of V-belt drive which has cogs on the inside to take care of crimping. Mr. Tapley said they had been trying some on high speed warpers for about six months. Mr. Norman said that he is at present running a comparative test between four different makes of V-belt drives, including the cog type. He is keeping a ledger record on this test and promised to make a report on it at a later meeting.

Mr. Whatley brought up the question in connection with Mr. Norman's methods of gauging the belt as to whether the wear on the sides of the belt

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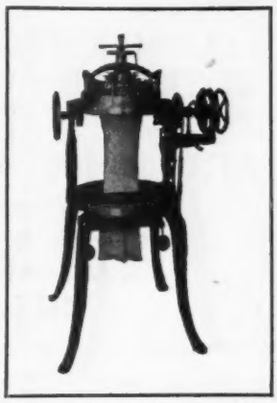

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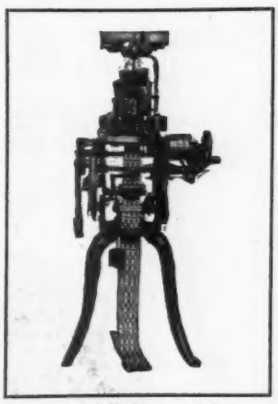

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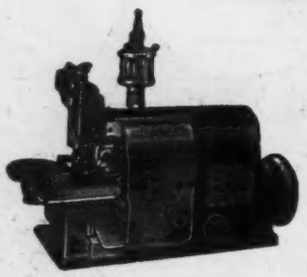

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would not have an influence, suggesting that possibly the method of gauging the belts between two studs would not be suitable. Mr. Norman said, however, that he had not run into trouble along this line.

There was next a brief discussion as to the comparative merits of stokers and hand-firing where a mill has ample boiler capacity, but no one present had sufficient experience to report with regard to stokers, other than Mr. Cottle who stated that his experience had not been satisfactory in the use of stokers with ample boiler capacity.

Preventing Oil Drip from Line Shaft Bearings.

"Discuss the best methods of lubrication of line shafting to prevent oil drip from bearings," was the next subject discussed. In this connection Mr. Horsley asked whether anyone had applied the high-pressure lubricating system on line shafting; and Mr. Vincent replied that they are using it in connection with ball bearings but have not tried it on plain bearings.

Mr. Norman reported that they use an oil pan under the bearings on line shafting, but that the shafting is under the supervision of their various department heads and he does not keep up with it.

To prevent excessive oil drips, Mr. Whatley recommended that all oiling on shafting be done while the shafting is standing, and that just enough oil for lubrication should be put on. He explained that with the old style bearing, it is advisable to blow the excessive oil off and then clean the bearings and keep the drip-pans clean.

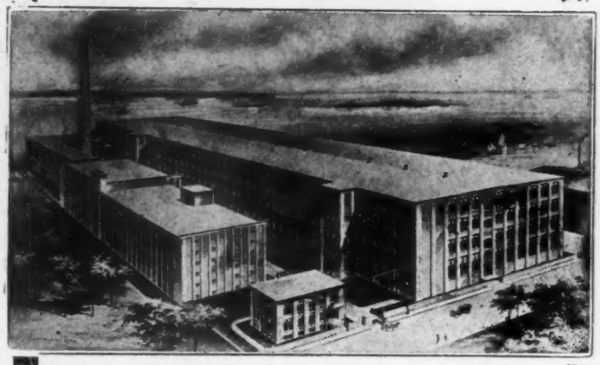
At this point Mr. Howarth stated that on a recent visit to the mill of the United States Penitentiary in Atlanta he had seen cardboard washers revolving on the line shafting, and in asking why these were used was told that it was for the purpose of absorbing the excessive oil running out onto the line shafting. Several of those present indicated the use of the card-board washer on shafting, stating that it was used rather for the purpose of keeping the shafting free of lint, etc., and not for the purpose of taking up the oil but that it might have some virtue in this respect. Mr. Whatley pointed out that if the wipers in the bearings are kept in good shape there should be no oil seeping out onto the shafting.

Making Supply Parts at the Mill.

The next question asked for reports as to the advantages of making the mill's own supply parts in the mill machine shop. Mr. Norman reported some interesting figures in this connection, stating that, "there are a good many supply parts that you can buy cheaper than you can make them, and there are some that you can make cheaper than you can buy them." He stated that they have saved as high as 250 per cent on some items and read the following information as a result of some figures he had brought from the mill. On twister bearings, he said, these cost $5.78, and that they can get the castings, babbitt and cap screw for $1.30 and that the labor cost is 92 cents, making a total cost, when made at the mill of $2.22. On some gears, he said, he can

Quissett Mill

New Bedford, Mass.



Spinning Quality Into Yarns

Quissett's modern and efficient mechanical facilities for spinning yarns are necessities.

Of much more importance to the textile man, however, is the interest and utmost care exercised by Quissett workers throughout every process.

It is this human control that maintains the uniform high standard of Quissett Yarns . . . the element that adds confidence . . . the assurance of satisfaction . . . as an inherent, intangible value.

Carded and Combed Cotton Yarns in all numbers and Descriptions.

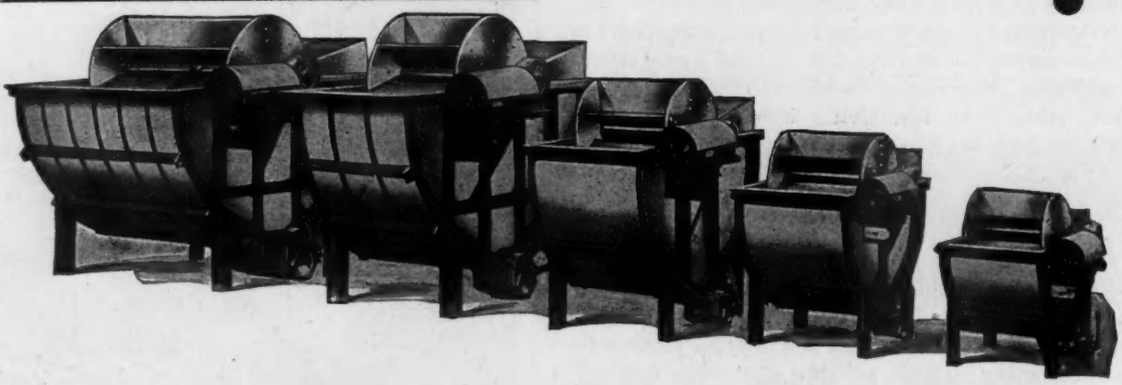
Ply Yarns our Specialty.

Egyptians, Sea Island, Peelers, Sakelarides, Pimas and Peruvians.

QUISSETT MEANS QUALITY

Wm. M. Butler, Pres.
Edward H. Cook, Treas. Thomas F. Glennon, Agent

Ready Now!



STRICKLAND MONEL METAL PADDLE DYEING MACHINE, Motor or Belt Driven, in a Sturdy Cast Iron Frame

Hosiery dyers will welcome the corrosion resisting cast iron frames, mono-cast side frames and cast iron angle end frames.

These frames are made extra heavy and rigid to reduce vibration. Motor, belt or chain drive at your option. Capacities 5, 10, 25, 50 and 100 lb. sizes. Other sizes built to order.

Write today for price and delivery.

STRICKLAND PATTERN WORKS
Chattanooga, Tennessee

Who else wants QUICKER *box service*

From our 5 SOUTHERN PLANTS

Right in the heart of the Southern textile district are five centrally located Old Dominion box plants, to give you quicker service, lower freight rates and quality boxes that stand second to none. We are the largest producers of paper boxes in our particular line in the United States and are in position to fill your requirements for boxes with special design wraps on short notice. Let us quote you on your next order, there is no obligation.

OLD DOMINION BOX COMPANY, INC.
Lynchburg, Va.

Winston-Salem, N. C. Burlington, N. C. Ashboro, N. C. Charlotte, N. C.

quality OLD DOMINION **Paper Boxes**

Mills Successful with Rayon use LOPER Cost System

The pioneers and leaders in rayon weaving are Loper clients. They have found our system especially adapted for accurately figuring advance costs on fancy and rayon fabrics.

A Request will bring you the names of these mills.

Loper Cost System Complies with the Basic Recommendations of the Cotton Textile Institute

Ralph E. Loper & Co.

INDUSTRIAL ENGINEERS
Specialists in Textile Cost Methods Over 18 Years
FALL RIVER, MASS. GREENVILLE, S. C.

FOR THE SHIPPING ROOM

STENCIL MACHINES

OIL STENCIL PAPERS

A. J. BRADLEY MFG. CO.
101 BEEKMAN ST., NEW YORK

make these with 55 cents for material and 20 cents for labor as against a price of $1.70. He said that roving frame stud gears cost $2.00 when bought and that he can make them with a material cost of 45 cents and a labor cost of 35 cents. Mr. Horsley, the superintendent, pointed out that these costs do not include overhead and the cost of running the shops.

W. L. Brown, general master mechanic, Alabama Mills Company, stated that they "do a business" of about $30,000 a year in parts, figuring in overhead and everything involved in the cost of making the parts. He said that on pick gears, for example, where these cost $7.75 he can make them for $2.50. At the same time, he emphasized that the most important factor in connection with making one's own supply parts is in convincing the overseers of the various departments that the parts made at the mill are just as satisfactory as those purchased outside.

J. R. Edwards of Shawmut stated that they keep an itemized cost on each job in their shop and that they manufacture practically all of their parts. This is a mill on very heavy duck. He said that on some jobs they saved more than one-half the cost, and that they have found it advantageous to put steel gears of their own make in many places where they had used test gears. One application was on the head gears on Crompton & Knowles heavy looms, where he said they have had some steel gears running for five years and that these are still in good shape. He said that they machined the gears and cut the teeth.

Mr. Ward reported satisfaction in making and using steel gears on the Brownell twister, using steel gears on the larger gears and malleable iron for the smaller ones.

Co-operation Between Mill and Mechanical Department.

The final question discussed was, "What should be the true relation between the mill and the mechanical department? How can the mechanical department decrease the amount of supplies used by other departments?"

The sentiment on this question was well summed up in the statement of Mr. Whatley of Tallassee, who said,

"I think that here is one of the best places to get the most life out of your supplies after you get them. I do not know of any better way than close co-operation between the overseers, second hands, and section hands, and the mechanics in the shops. I think that when a job comes down to the shop, if the master mechanic sees that it could have gone longer with the proper treatment, he should get with the overseer and talk it over with him, because in this way they can save a good many more jobs from coming down. If each fellow will work to help the other much better results will be secured. I know that if I have something to go up into the mill that should not have gone, I am 'proud' to have the overseer call my attention to this so that the same mistake will not be made again." This concluded the discussion and the meeting was adjourned.

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HARD MAPLE HOSIERY BOARDS

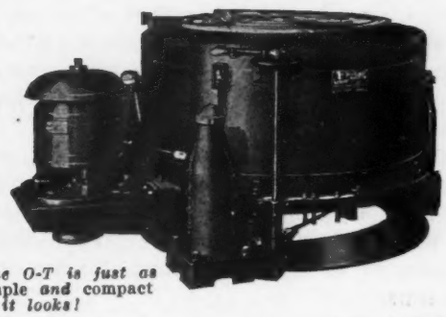
Give you that much desired finish that cannot be obtained from any other than wooden boards.

You get the length, lustre, *feel* that the goods should have.

Our special finish is highly recommended for silk and wooden boards.

We serve the best mills—send a request for list and same will be forthcoming.

JOSEPH T. PEARSON & SON CO.
Manufacturers
Kensington and E. Boston Avenues
PHILADELPHIA, PENNA.



The O-T is just as simple and compact as it looks!

That's the O-T to a T!

An Extractor you can load or unload from any and every side . . . An Extractor that starts and stops in a jiffy—runs smoothly on Timken bearings . . . An Extractor that requires no special anchorage . . . An Extractor with a *silk finish* basket with monel metal side sheets.
—that's the O-T to a T!

THE AMERICAN LAUNDRY MACHINERY CO.
CINCINNATI, OHIO

The YARN MARKET

Philadelphia, Pa., February 14, 1931.

IT WILL BE RECALLED that a more optimistic feeling seemed to exist in the yarn market last month than had been reported for some time. Very few felt that there would be any unusual ascension of prices, but pointed out that the cheapness of the raw material, plus the added incentive for closer co-operation between mills and sellers and more efficient manufacturing methods, should enable profits to be realized by both sellers and mills, even though prices of yarns in general should be at a rather low level compared to what they were in 1929.

The present report begins with the week of January 18th, and transactions during this week in the yarn market were of a rather "bearish" aspect. There was a total lack of price uniformity, many dealers claiming that prices for ordinary carded weaving and knitting yarns were lower than they had been any time since 1914. This lack of uniformity in prices caused buyers to delay covering just as much as possible. In spite of the confusion that existed at this time, there were many spinners who maintained their prices, stating that they would make no further recessions until an appreciable change developed in the price of raw materials.

A slightly improved demand for carded and combed yarns was reported during the second week. The majority of buying was on a small scale, but there were enough buyers in the market to run the total sales for the week to a rather attractive figure. Prices seemed to be much stiffer this week than they were the previous week, as there was a noticeable difference in the number of sales made below published quotations.

Carded cotton yarn in pivotal numbers, such as 20s and 30s two-ply, were selling at this time at 20 and 25 cents a pound, respectively, which represented the published prices for these yarns. There did not appear to be a great amount of price slashing at this time.

Cotton quotations experienced quite a rally during the third week. The rise in the price of the raw product was not reflected in yarn prices, however. There were even some instances where dealers lowered yarn prices, it being believed that the reason for this was due to the fact that it was necessary for them to sell on account of the stocks on hand. Even though the upward trend of cotton quotations failed to prove the necessary stimulus for pushing yarn rates up, it at least created a firmer atmosphere among the sellers, which was a much needed factor at this time.

During the next week some houses stated that they were getting from a half-cent to a cent a pound more for ordinary quality carded yarns. Others handling combed yarns related a similar experience with single counts on cones. Most sellers indicated that they were experiencing a great amount of difficulty trying to convince customers that they should pay more for their yarns. Spinners contributed quite a bit in bringing about the more favorable turn by stiffening their prices for yarns wanted for April, May and later shipment. While many representative yarn mills were willing to take limited orders at the market, they were requiring a cent more for April and 1½ cents more for May and thereafter shipments.

Many sellers that had previously appeared about ready to give up the ship seemed to take a new lease on life, as a result of the stiffening and rise in yarn quotations, and approached a really optimistic mood. They seemed to feel that in spite of the expected resistance from buyers as to the new rates, the volume of sales would continue to grow larger.

Philadelphia prices on February 14th follow:

Single Skeins

4s to 8s	17½	10s	18
12s	18½	14s	19
16s	19½	20s	20½
24s	22½	26s	23½
30s	24½		

Single Warps

10s	18½	12s	19
14s	19½	16s	20
20s	20½	26s	23½
30s	24½	...	

Two-Ply Skeins

8s	18	10s	18½
12s	19	14s	19½
16s	20	20s	20½
24s	23	26s	24
30s	25	40s	32

Two-Ply Warps

10s	19	12s	19½
14s	20	16s	20½
20s	20½ @21	24s	23½
26s	24½	30s	25½ @26
40s	33		

Frame Spun Carded Yarn on Cones

8s	18	10s	18½
12s	19	14s	19½
16s	20	18s	20½
20s	21	22s	21½ @22
24s	22½ @23	26s	23½ @24
30s	25 @25½	40s	32
30s dbl. carded	29	30s tying in	24½

Two-Ply Combed Peeler Skeins and Warps		Single Combed Peeler Yarns on Cones	
8s to 16s	32 @33	18s	29½
20s	33 @35	24s	32
24s	35 @37	30s	37½
30s	38 @39	36s	39
40s	40 @41	38s	40
50s	46 @47	40s	41
60s	53 @54	50s	46 @46½
70s	62 @64	60s	52 @53

Mule-Spun.

Carded Yarn on Cones		Combed Peeler Yarn on Cones	
10s	25	10s	34
12s	25½	12s	35
14s	26	14s	36
16s	26½	16s	37
18s	27	18s	38
20s	27½	22s	41
24s	30	26s	42
26s	31	30s	44
30s	32	36s	47
40s	39½	40s	50